S153

The Lincolnshire Naturalist

Volume 28 Part 1b

Transactions of the Lincolnshire Naturalists' Union
for 2011 published 2012

Botanical Assessment of Watercourses in the Isle of Axholme.

The Value of Slug Workshops in Recording Distributions.

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Wildlife in 2011.

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ISSN 1756-1884

Printed by Mortons, Morton Way Horncastle Lincolnshire LN9 6JR
Edited by Phil Porter

BOTANICAL ASSESSMENT OF WATERCOURSES IN THE ISLE OF AXHOLME

Jeremy Fraser

Acknowledgements

The data upon which this report is based were obtained during fieldwork funded by North Lincolnshire Council, as part of its Local Wildlife Sites survey programme.

I would like to thank all those involved in arranging access for the surveys, particularly Laura Hicks and Chris Manning, and everyone who helped me in the field, including Paul Kirby and Alan Jones. In addition, I am grateful to Iain Edwards and Charlie Barnes for technical assistance in map production. Last, but not least, Andrew Taylor and Caroline Steel provided invaluable guidance throughout.

Summary

The Isle of Axholme (part of the Humberhead Levels National Character Area) is an area of low-lying alluvial deposits and remnant raised mire between Doncaster and Scunthorpe. It is dominated by arable cultivation and many kilometres of canalised rivers and substantial drains. Until recently, there had been no systematic investigation of wildlife interest along these watercourses, and thus baseline surveys were badly needed. With this in mind, more than 160 botanical surveys were carried out during the period 2009-2011, funded by North Lincolnshire Council. Evaluation of the survey data has led to selection of the great majority of the larger drains as Local Wildlife Sites, in recognition of their diverse wetland flora. Most of these Local Wildlife Sites are sympathetically managed by Internal Drainage Boards, Environment Agency or British Waterways, and have additional value in forming corridors connecting Sites of Special Scientific Interest.

Knowledge of plant life in Isle of Axholme watercourses has been greatly increased by the surveys, but there are still many unknowns, such as how do plant (and animal) populations vary through the year, from year to year, and in response to changes in management and environmental factors. While it would be highly desirable to address such topics as comprehensively as possible, the main priority at present is to ensure that the condition of each Local Wildlife Site is adequately monitored every 5-10 years.

Introduction

The Isle of Axholme is an area of low-lying alluvial deposits and remnant raised mire located largely in western North Lincolnshire, to the west of the River Trent. It also extends southwards into Nottinghamshire, westwards into Metropolitan Borough of

Doncaster and northwards into East Riding of Yorkshire. The whole area forms part of the Humberhead Levels National Character Area, details of which can be found at www.naturalengland.org.uk.

This paper considers botanical data collected along watercourses in the North Lincolnshire part of the Isle of Axholme, and in an adjacent tiny corner of Nottinghamshire (see Map 1). To prevent confusion, the land just defined is henceforth referred to as 'the study area', to differentiate it from the larger Isle of Axholme. The word watercourse is used here to mean a linear feature that usually holds water all year round, and encompasses ditches, drains, canals, streams and rivers.

The study area measures approximately 20km from north to south and 10km from west to east. It comprises a north-south slightly elevated ridge of land surrounded by flat former fenland at around sea level. Small towns and villages are concentrated on the higher, drier ground and beside the Trent, whereas arable farmland and numerous watercourses dominate elsewhere. There are two major tracts of lowland raised mire in the Isle of Axholme: Hatfield Moors Site of Special Scientific Interest (SSSI) is immediately west of the study area; Thorne, Crowle and Goole Moors SSSI is mostly outside, but partially within the north-western corner of the study area. These two sites include the Humberhead Peatlands National Nature Reserve, which is recognised at a European level through Special Area of Conservation and Special Protection Area status.

Thirteen further SSSIs are located in or adjacent to the study area (see Map 1). Wetland of various types dominates nine of these sites, namely: Crowle Borrow Pits; Epworth Turbary; Haxey Grange Fen; Haxey Turbary; Misson Training Area; Misson Line Bank; River Idle Washlands; Humber Estuary; and Hatfield Chase Ditches.

Many localities in the study area that are not of SSSI status support habitats and species of at least county-wide importance. Towards the end of the twentieth century some of these sites were accorded the non-statutory designation Site of Interest for Nature Conservation (SINC), which is now being replaced by a network of more rigorously assessed Local Wildlife Sites (LWSs). In 2007, North Lincolnshire Council commissioned Lincolnshire Wildlife Trust (LWT) to begin re-evaluating all existing SINCs in North Lincolnshire (and evaluating other non-SSSI land of potential nature conservation interest), a process that is on-going and will be completed in 2012.

The primary function of the new LWS designation is to raise awareness of owners, occupiers, land managers and appropriate local authorities, providing a sound evidence base from which to make decisions. This should assist statutory planning procedures, reduce accidental damage of wildlife-rich areas, and hopefully lead to greater levels of sympathetic habitat and species management on LWSs. Furthermore, the voluntary approach at the heart of the LWS system is complementary to the statutory approach within which Natural England operates on SSSIs.

During 2008 the first LWS surveys were carried out in the study area, concentrating on SINCs that were also Lincolnshire Wildlife Trust nature reserves. Further SINCs were surveyed in 2009 and 2010, when the emphasis switched to evaluation of the extensive and very poorly known network of non-SSSI watercourses, little of which was SINC designated. A small number of watercourse surveys were also carried out in 2011.

Watercourse Surveys 2009-2011

It is clear from reading The Flora of Lincolnshire (Gibbons, 1975) that many watercourses in the study area were full of botanical riches in decades past. There was hope at the beginning of 2009 that some of this diversity had been retained, but recent records were sparse. The lack of SINC designated watercourses at that time could have been a reflection of minimal wildlife interest, but it was important to discover the true situation. Thus the surveys began, in liaison with a relatively small number of sympathetic staff working for, or on behalf of, organisations responsible for management of almost all the watercourses. These bodies are Internal Drainage Boards (IDBs), Environment Agency (EA) and British Waterways (BW). In general, the smallest drains and ditches are privately owned and managed, while large drains that are categorised as Main River are managed by Midlands region of EA. During the survey period, three IDBs managed most of the medium-sized watercourses, namely Hatfield Chase and Finningley IDBs (now amalgamated to form part of Doncaster East IDB) and Isle of Axholme IDB (now part of Isle of Axholme and North Nottinghamshire Water Level Management Board). Stainforth and Keadby Canal is the responsibility of BW.

The great majority of watercourses in the Isle of Axholme are canalised and slowly flowing, typically with straight sides and steep banks. They mostly flow eastwards or north-eastwards towards the River Trent, which in turn flows north to the nearby Humber Estuary. Survey has concentrated on the larger watercourses that are not part of Hatfield Chase Ditches SSSI. Some of the smaller drains were also inspected, but species lists for these were only compiled if an initial short visit suggested that it would be worthwhile. Close and productive liaison with BW, EA and IDBs over weed cutting and bank management regimes ensured that the great majority of surveys were carried out when aquatic and marginal plants were at their most obvious.

An important element of survey procedure was the sub-division of watercourses into recording units (or sub-sites) approximately 1km in length, which allowed recording of a plant list and other relevant features within each unit. All aspects of the surveys were consistent with guidance in a recent publication referred to here as the 'Selection Guidelines', the full title being 'Local Wildlife Sites – Guidelines for their Identification & Selection in the Historic County of Lincolnshire (Lincolnshire, North Lincolnshire & North East Lincolnshire)'. This was first published by Lincolnshire Biodiversity Partnership (LBP) in July 2006, and then revised in December 2008; it is available on www.lincsbiodiversity.org.uk.

Survey Results

All the watercourses surveyed in the study area during the 2009-2011 field seasons are shown and named on Map 2. The use of red, blue and green on this map provides clarity where there are two or more adjacent watercourses, but has no further significance. Map 3 provides a visual representation of the botanical diversity of each 1km recording unit along surveyed watercourses. The index score referred to in the Map 3 key is the number of freshwater plant species recorded in each sub-site that are also listed in Table 7 of the Selection Guidelines (LBP, 2008). Index scores range from 0 to 20.

All records are held by the Lincolnshire Environmental Records Centre, which is part of LBP. A comprehensive list of wetland plant species recorded during the surveys is attached as Annex 1.

The best stretch of watercourse in terms of index scores is a 2.1km section of North Engine Drain immediately downstream of the eastern end of Hatfield Chase Ditches SSSI. Many other watercourses score very highly, and a high proportion of these are connected to the SSSI, or are adjacent to it. This network of statutory and non-statutory sites extends eastwards to Humber Estuary SSSI.

With the exception of Stainforth and Keadby Canal, which is considered below, the surveyed sites display a striking level of botanical uniformity. Consequently, it has been possible to draw up a list of interesting wetland plants that occur commonly in the study area watercourses, many of which are not common in most other parts of the historic county of Lincolnshire. These species are *Carex elata* (tufted-sedge), *Lythrum salicaria* (purple-loosestrife), *Myriophyllum verticillatum* (whorled water-milfoil), *Potamogeton crispus* (curled pondweed), *P. friesii* (flat-stalked pondweed), *P. pectinatus* (fennel pondweed), *P. perfoliatus* (perfoliate pondweed), *P. pusillus* (lesser pondweed), *Sagittaria sagittifolia* (arrowhead) and *Sparganium emersum* (unbranched bur-reed). Other species of note that occur less often include *Hottonia palustris* (water-violet), *Isolepis* (*Eleogiton*) *fluitans* (floating club-rush), *Lysimachia* *vulgaris* (yellow loosestrife), *Potamogeton lucens* (shining pondweed), *Thalictrum flavum* (common meadow-rue) and *Zannichellia palustris* (horned pondweed).

The most exciting discovery during 2009-11 was a small colony of *Potamogeton praelongus* (long-stalked pondweed) in South Idle Drain, a species that had been unknown in Lincolnshire since the mid twentieth century. According to Preston (1995), this pondweed has distinctive large fruits, but rather variable leaf shape. Intriguingly, an extremely rare hybrid of *P. praelongus* and *P. perfoliatus* (*P.* x *cognatus*) was recorded nearby in Double Rivers and North Idle Drain in 1943. It has not been seen at either locality since 1944, and Preston was unable to re-find either the hybrid or *P. praelongus* on a visit to the area in 1989. He also states that these two taxa could be confused, which suggests two possibilities: firstly, the 1943 hybrid records might really have been *P. praelongus*; and secondly, the hybrid might await re-discovery, especially as the parent species grow together in South Idle Drain.

As mentioned above, the flora of Stainforth and Keadby Canal differs markedly from that of all other surveyed watercourses in the study area. Several taxa are restricted to the canal, although the only one that is a species native to the area is the abundant *Spirodela polyrhiza* (greater duckweed). The other taxa unique to the canal were the abundant *Lagarosiphon major* (curly waterweed), one dense patch of *Nymphoides peltata* (fringed water-lily), frequent *Mentha* x *smithiana* (tall mint), occasional *Acorus calamus* (sweet-flag) and occasional *Impatiens capensis* (orange balsam). A few native species are also more common along the canal than elsewhere, including *Lemna gibba* (fat duckweed), *Oenanthe crocata* (hemlock water-dropwort), *Rumex hydrolapathum* (water dock), *Scutellaria galericulata* (skullcap) and *Stachys palustris* (marsh woundwort).

Local Wildlife Site Selection

The Lincolnshire LWS Panel is responsible for recommending selection of Local Wildlife Sites, using criteria in the Selection Guidelines (LBP, 2008). A watercourse is likely to become a LWS if survey data shows that it supports a diverse a ssemblage of key wetland plants in all the constituent 1km sub-sites, or in the great majority of them. In terms of the commonly used criterion **Flo3**, this means an index score of at least 10 using Table 7 (LBP, 2008). If insufficient survey data are available, the Panel typically defers making a recommendation until further appropriate survey has been carried out.

All the Panel recommendations are sent to relevant owner/occupiers or others responsible for management, who are given the opportunity to make observations on factors relating directly to the application of site selection criteria. If no observations are forthcoming, Panel recommendations are endorsed by Lincolnshire Biodiversity Partnership Steering Group (LBPSG), and then passed on to the appropriate local authority for formal adoption within the Local Plan or Local Development Framework. When observations are made by owner/occupiers, the Panel is obliged to reconsider its original recommendation and submit the outcome to LBPSG, which then makes a final decision and informs the local authority. Overall, very few observations are made and even fewer of these are of a negative nature.

Map 4 shows wetland LWSs selected in the study area, incorporating around 30 watercourses surveyed in 2009, 2010 or 2011. It is not unusual for an LWS to include more than one watercourse, because major drains, rivers and canals are often flanked by a parallel secondary drain on one or both sides. This is the case within Stainforth and Keadby Canal Corridor LWS, which includes much of South Soak Drain, and some of North Soak Drain, as well as the canal. Such corridors can be of particular value because they are considerably wider than single watercourse sites, and they often support a greater range of dry and wet habitats. As an example, a single visit to a 1km stretch of grassland/scrub mosaic and watercourse within the Warping Drain Corridor LWS revealed 81 species of plant, 16 species of bird, 15 species of butterfly and 3 species of day-flying moth.

Influences on Botanical Diversity of Watercourses

Various factors appear to influence watercourse biodiversity in the study area, the most important probably being water quality, management practices and size of channel.

Water Quality

In the absence of objective water quality data, it seems reasonable to assume that there is relatively little variation in water quality across the study area, because the landscape is dominated by flat and low-lying cultivated land, with little industrial and urban development. This assumption is consistent with most of the botanical data, which indicate fairly nutrient-rich conditions. However, some sites appeared to have poorer water quality at the time of survey, including:

- A stretch of Old Dun Drain in the vicinity of a pig farm, where the water looked polluted and botanical interest was much lower than upstream to the north;
- Part of Anchor Drain. Here, runoff from the well-used A18 may be

- influencing the flora;
- Stainforth and Keadby Canal. The strikingly different flora in this watercourse may be associated with relatively poor water quality, due to connections to the west with watercourses that flow through industrial and urban areas. Frequent use by watercraft may also have a negative impact.

Although the flora is quite diverse, it is possible that River Torne holds industrial and urban pollutants acquired on its journey from the eastern edge of Doncaster.

No sites were surveyed that appeared to be low in nutrients and pollutants. The most likely situation where such conditions could exist is a small drain or ditch fed entirely by ground water and not diluted by inflow of nutrient-rich water.

Water quality and plant populations may vary quite a lot through the year and also from year to year. The best way to assess the extent and significance of this variability is to carry out repeated monitoring at various times during the growing season and over a number of years. Unfortunately, this is beyond the scope of local authority funded LWS survey contracts.

Management Practices and Size of Channel

Two environmental features that clearly vary within and between sites are size of watercourse and degree/type of management. Survey data strongly suggest that botanical richness is greatest in wide and intensively managed drains, rivers and canals. Thus, as one proceeds downstream, most watercourses become wider, hold more water, are more likely to be adequately managed, and exhibit an increase in botanical diversity. However, this trend tends to be reversed near the River Trent, perhaps as a result of increased salinity and pollution levels.

LWS surveys have tended to focus on the larger and potentially more diverse watercourses, so it is possible that some scarce plants found particularly in ditches or small drains have been under-recorded. Two examples are *Isolepis* (*Eleogiton*) *fluitans* and *Potamogeton coloratus* (fen pondweed). The latter is an extremely rare species in Vice County 54 that was discovered in the study area for the first time 2011, after completion of the LWS surveys. The plants were growing in 10-15cm of clear water in a small field ditch that had been managed (presumably by the landowner) to keep bank and perhaps channel vegetation under control.

All of the major bodies that carry out weed cutting and channel management in the Isle of Axholme (EA, IDBs and BW) are guided by the need to control flooding. This means that along most watercourses weed cutting occurs once or twice a year, and in addition quite a lot of bank vegetation is mown annually or more frequently. While this may be seen by some as counter-productive for wildlife in general, the watercourse survey data suggest a beneficial effect as far as plants are concerned. Three possible reasons may help to account for this relationship.

Firstly, drains that receive little management tend to become swamped by common reed and/or other coarse wetland vegetation, leaving no room for less competitive plants. Secondly, uncontrolled growth of bankside woody plants leads to increased shading and accumulation of fallen leaves, which also has a negative effect on most wetland plants. Thirdly, frequent channel clearance may mitigate negative effects of eutrophication, if cut vegetation is removed from the watercourse instead of decomposing *in situ*. Another potentially positive effect of frequent clearance is that it may speed up passage of poor quality water through the system. On the other hand, a dense bed of common reed or other watercourse vegetation may be beneficial close to a point-source of poor quality water, if it acts as a living filter and prevents nutrients and pollutants spreading downstream.

Other Factors

Canalisation is almost universal, although the only named canal (Stainforth and Keadby) differs from most other sites in that it is slightly above the general ground level, as opposed to below. Hydrology of the whole area is strictly controlled by embankments and use of numerous pumping stations, which limit the influx of brackish water from the Humber Estuary.

Fast flowing water tends to be well oxygenated and can support species that do not occur where flow is slow. The virtually flat and low-lying nature of the Isle of Axholme dictates that all watercourses are slow-moving, and thus they lack species associated with fast flow.

Hatfield Chase Ditches SSSI

It would be reasonable to assume that when Hatfield Chase Ditches SSSI was designated, it supported richer aquatic and marginal habitat than other drains of similar size and type in the study area. Whether or not this assumption is valid, the situation today could be different. It would be comparatively straightforward to explore this further, by comparing the recently acquired LWS botanical data with compatible SSSI data (ie species lists for each 1km).

If clear differences become apparent from this research, then the next step would be to look for an explanation. Several variables are likely to be involved, making meaningful analysis difficult, but the LWS survey data does suggest a positive correlation between intensive drain management and botanical richness. Armed with botanical data from the SSSI and watercourse management records (from EA/ IDBs?), some clarification might be possible, which in turn might prompt reconsideration of SSSI management regimes. However, any changes should take into account all the interest features of the SSSI, not just the plants. Additional considerations would include impacts on the legally protected water vole, which is known to be widespread in the study area. Many other species and groups of animals also need to be taken into account, such as aquatic invertebrates, amphibians, reptiles, birds and European otter, as well as European eel and other fish.

Monitoring

Currently, the Selection Guidelines (LBP, 2008) provide no details of the LWS monitoring process, because at the time of publication only baseline surveys were being carried out. However, appropriate guidance is currently being finalised, which states that all LWSs should be reassessed every 5-10 years, either by means of a full survey, or a less comprehensive monitoring visit. The latter involves walking the entire length of each watercourse, but only recording species lists in 50% of 1km sub-sites. Monitoring visits along drains in the study area could begin as soon as 2014.

Future Surveys and Research

There is much scope for further botanical recording along watercourses surveyed during 2009-2011, over and above that needed for LWS monitoring purposes. These surveys would be useful in order to show how botanical diversity and abundance varies from year-to-year, and even during one growing season, providing the same 1km recording units are used.

The flora of ditches and smaller drains appears to be generally of low diversity, but this interpretation is based on relatively few surveys. Whilst it seems likely that such watercourses are prone to drought, poor water quality, inappropriate management and dominance by common reed, it would be worthwhile increasing survey coverage to clarify the situation.

Only incidental recording of fauna took place during the LWS surveys, and no specialist surveyors of difficult groups were involved. While this approach was perfectly adequate in terms of LWS selection, it would be highly desirable to encourage future collection of faunal data, using the already established recording units. A general survey of aquatic invertebrates would be particularly useful, to add to the many existing water beetle records held by LERC. All faunal records, whether new or older will contribute to building a more complete picture of the wildlife interest of each site.

Nutrient and pollutant levels are environmental variables that influence the flora and fauna of watercourses, so it may be worthwhile obtaining water quality data to compare with botanical and animal records. Some relevant information may be available from bodies such as IDBs, EA and BW, but a new data set is probably needed to allow statistically significant conclusions to be drawn.

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Editors Note. The maps and tables referred to in this article are extremely detailed and unsuitable for reproduction in A5 format, but can be downloaded from http://lnu.org/transactions.php . Members without an internet connection should enquire to the editor Phil Porter 01522 500676.

Rumex hydrolapathum Water Dock

Picture Phil Porter

Annex 1

Wetland Plant Taxa Recorded During Watercourse Surveys In the Isle of Axholme in North Lincolnshire, 2009 to 2011.

Scientific Name	English Name	Scientific Name	English Name
Acorus calamus	Sweet-flag	*Conium maculatum*	Hemlock
Agrostis canina	Velvet Bent	*Crassula helmsii*	New Zealand Pigmyweed
Agrostis stolonifera	Creeping Bent	*Crataegus monogyna*	Hawthorn
Alisma plantago-aquatica	Water-plantain	*Deschampsia caespitosa*	Tufted Hair-grass
Alnus glutinosa	Alder	*Eleocharis palustris*	Common Spike-rush
Alnus incana	Grey Alder	*Eleogiton fluitans*	Floating Club-rush
Alopecurus geniculatus	Marsh Foxtail	*Elodea canadensis*	Canadian Waterweed
Alopecurus pratensis	Meadow Foxtail	*Elodea nuttallii*	Nuttall's Water-weed
Angelica sylvestris	Wild Angelica	*Epilobium hirsutum*	Great Willowherb
Apium nodiflorum	Fool's Water-cress	*Epilobium parviflorum*	Hoary Willowherb
Azolla filiculoides	Water Fern	*Equisetum arvense*	Field Horsetail
Barbarea vulgaris	Winter-cress	*Equisetum fluviatile*	Water Horsetail
Berula erecta	Lesser Water-parsnip	*Equisetum palustre*	Marsh Horsetail
Betula pubescens	Downy Birch	*Eupatorium cannabinum*	Hemp-Agrimony
Bidens tripartita	Trifid Bur-Marigold	*Filipendula ulmaria*	Meadowsweet
Butomus umbellatus	Flowering Rush	*Frangula alnus*	Alder Buckthorn
Calamagrostis canescens	Purple Small-reed	*Galium palustre*	Common Marsh-bedstraw
Callitriche sp.	Water-Starwort species	*Glyceria fluitans*	Floating Sweet-grass
Caltha palustris	Marsh Marigold	*Glyceria maxima*	Reed Sweet-grass
Cardamine flexuosa	Wavy Bitter-cress	*Gnaphalium uliginosum*	Marsh Cudweed
Cardamine pratensis	Cuckooflower	*Hippuris vulgaris*	Mare's-tail
Carex acutiformis	Lesser Pond-sedge	*Hottonia palustris*	Water-violet
Carex curta	White Sedge	*Hydrocotyle vulgaris*	Marsh Pennywort
Carex elata	Tufted-sedge	*Hypericum tetrapterum*	Square-stalked St. John's-wort
Carex hirta	Hairy Sedge	*Impatiens capensis*	Orange Balsam
Carex otrubae	False Fox-sedge	*Iris pseudacorus*	Yellow Iris
Carex riparia	Great Pond-sedge	*Isolepis setacea*	Bristle Club-rush
Ceratophyllum demersum	Rigid Hornwort	*Juncus acutiflorus*	Sharp-flowered Rush
Characeae sp.	Stonewort species	*Juncus articulatus*	Jointed Rush

Scientific Name	English Name	Scientific Name	English Name
Juncus bufonius	Toad Rush	*Persicaria hydrapiper*	Water-pepper
Juncus bulbosus	Bulbous Rush	*Persicorio lopathifolio*	Pale Persicaria
Juncus conglamerotus	Compact Rush	*Petosites hybridus*	Butterbur
Juncus effusus	Soft Rush	*Phalaris arundinoceo*	Reed Canary-grass
Juncus inflexus	Hard Rush	*Phragmites oustralis*	Common Reed
Juncus subnodulosus	Blunt-flowered Rush	*Poo trivialis*	Rough Meadow-grass
Logorosiphon mojor	Curly Waterweed	*Potomogeton berchtoldii*	Small Pondweed
Lemno gibbo	Fat Duckweed	*Potamogeton crispus*	Curled Pondweed
Lemno minor	Common Duckweed	*Potomogeton friesii*	Flat-stalked Pondweed
Lemno trisulco	Ivy-leaved Duckweed	*Potomogeton lucens*	Shining Pondweed
Lotus pedunculatus	Large Bird's-foat-trefail	*Patomogetan notons*	Broad-leaved Pondweed
Lycopus europoeus	Gipsywort	*Potomogeton obtusifolius*	Blunt-leaved Pondweed
Lysimochio nummulorio	Creeping-Jenny	*Potomogeton pectinotus*	Fennel Pondweed
Lysimachia vulgoris	Yellaw Laosestrife	*Patamogeton perfoliotus*	Perfoliate Pondweed
Lythrum solicorio	Purple-loosestrife	*Potomogeton polygonifolius*	Bog Pondweed
Mentho oquotico	Water Mint	*Potomogeton proelongus*	Long-stalked Pondweed
Mentho spicota	Spear Mint	*Potomogeton pusillus*	Small Pondweed
Mentho x piperito	Peppermint	*Potomogeton trichoides*	Hairlike Pondweed
Mentho x smithiono	Tall Mint	*Potentillo onserino*	Silverweed
Myosotis loxo	Tufted Farget-me-not	*Patentillo erecto*	Tarmentil
Myosotis scorpioides	Water Forget-me-not	*Pulicorio dysenterico*	Common Fleabane
Myosoton aquoticum	Water Chickweed	*Ronunculus oquotilis*	River Water-crowfoot
Myriophyllum spicotum	Spiked Water-Milfoil	*Ronunculus circinotus*	Fan-Leaved Water-crowfoot
Myriaphyllum verticillotum	Wharled Water-Milfail	*Ranunculus peltotus*	Pand Water-crowfoot
Nuphor luteo	Yellow Water-Lily	*Ronunculus repens*	Creeping Buttercup
Nymphoeo olbo	White Water-Lily	*Ronunculus scelerotus*	Celery-leaved Buttercup
Nymphoides peltato	Fringed Water-Lily	*Ronunculus trichophyllus*	Thread-leaved Water-crowfoot
Oenonthe crocoto	Hemlock Water-Dropwart	*Rarippo omphibio*	Greater Yellow-cress
Oenanthe fistulosa	Tubular Water-Dropwort	*Rorippo nasturtium-oquoticum*	Water Cress
Persicorio omphibio	Amphibious Bistort	*Rorippo polustris*	Marsh Yellow-cress

Scientific Name	English Name	Scientific Name	English Name
Rumex conglomeratus	Clustered Dock	*Sparganium erectum*	Branched Bur-reed
Rumex hydrolapathum	Water Dock	*Spirodela polyrhiza*	Greater Duckweed
Sagittaria sagittifolia	Arrowhead	*Stachys palustris*	Marsh Woundwort
Salix alba	White Willow	*Succisa pratensis*	Devil's-bit Scabious
Salix caprea	Goat Willow	*Thalictrum flavum*	Common Meadow-rue
Salix cinerea	Grey Willow	*Triglochin palustre*	Marsh Arrowgrass
Salix fragilis	Crack Willow	*Typha angustifolia*	Lesser Bulrush
Salix viminalis	Osier	*Typha latifolia*	Bulrush
Sanguisorba officinalis	Great Burnet	*Valeriana dioica*	Marsh Valerian
Schoenoplectus lacustris/tabernaemontani	Common/Grey Club-rush	*Valeriana officinalis*	Common Valerian
Scrophularia auriculata	Water Figwort	*Veronica anagallis-aquatica*	Blue Water-speedwell
Scutellaria galericulata	Skullcap	*Veronica catenata*	Pink Water-speedwell
Solanum dulcamara	Bittersweet	*Zannichellia palustris*	Horned Pondweed
Sparganium emersum	Unbranched Bur-reed		

Hottonio polustris Water Violet

Picture Phil Porter

RAISING AWARENESS – THE VALUE OF SLUG WORKSHOPS IN RECORDING DISTRIBUTIONS.

Chris du Feu

Over the past decade I have been asked to give talks about slugs to various organisations in the East Midlands Wildlife Trust groups, gardeners' clubs, Women's Institute and such like. Why such groups ask to be informed about slugs is a mystery to me - slugs seem to be one of the least charismatic groups of species, sometimes called 'snails with bad PR'. The most likely explanation seems that, after a meeting about slugs, any other subject will appear brilliant in comparison.

What is in it for me? Certainly not the money. Until recently I have only asked for travel expenses but now I ask for an additional £100 speaker's fee which I will waive entirely if members bring slugs to the event. So far, no group has had to pay me the £100 but the number of slug records is increasing steadily. The slug workshops consist of a formal presentation giving details of slug ecology, distributions and identification. This ends, conveniently, at the refreshment break. After that we examine and record the specimens which members have brought. I will take home difficult specimens for closer examination or to grow to maturity for more reliable identification.

Surprisingly I do not recall anyone walking out of any of the talks but I do sometimes find that an individual who almost invariably comes to meetings has, mysteriously, failed to appear for the slug event. With my teaching background, I can confirm the value of preparation. When people make the effort to find slugs beforehand they begin to look at them and realise they come in many sizes, shapes and colours and, perhaps, there may be more to it than just '*it's a slug*'. Having searched for, and found, specimens, members are better placed to understand material in the talk. Rarely has a meeting failed to produce new 10 km records (i.e new dots on the national distribution map). If you do not have access to the mollusc distribution atlas published in 2000, you can see all the distribution maps on the National Biodiversity Network web site (www.nbn.org.uk).The reason for the continued flow of new 10 km records at workshops is partly under-recording, but that is not the whole story.

Since the last major popular publication about terrestrial molluscs (Kerney & Cameron, 1979) there have been many changes in nomenclature, species splits and major changes in distributions. There has been no comprehensive, accurate slug guide published since then. Happily, such a guide is in preparation, funded by the Leverhulme Trust and prepared at the National Museum of Wales in Cardiff by Ben Rowson. He hopes that it will be published by the end of 2013 (a vital addition to your Christmas present list).

Species identification is often very straightforward but some aggregates are problematic. Indeed there is some debate, hopefully soon to be resolved by DNA analysis in Cardiff, as to whether some species have been incorrectly split. Re-lumping some difficult pairs would be very helpful indeed. Slugs vary a great deal in colour; humans have relatively highly developed colour perception apparatus, but, unfortunately, colour is not always very reliable in slug identification. The large black slug *Arion ater* can appear in a variety of colours; black, brown, orange, yellow, grey and white. On the other hand, the large red slug *Arion rufus*, which is usually regarded as a different species, can also appear in a variety of colours; black, brown, orange, yellow, grey and white. The general lack of interest in slugs results in no commonly used common names. Some names may be helpful. The tiger/leopard/great grey slug *Limax maximus* is a carnivore which may be striped or spotted and is great but, alas, brown rather than grey. The dusky slug *Arion subfuscus* is anything but dusky, rather it is a handsome beast, often a glossy bronze or gold colour with contrasting darker side stripes. Even if you know the English word reticulated, you need a better imagination than mine to appreciate the name of the reticulated slug *Deroceras reticulatum*. And, as for Bourguignat's slug *Arion circumscriptus* - the common name is barely pronounceable and certainly does nothing to help identification. Scientific names, on the other hand, are the universally agreed labels by which species are known. Common names are fluid. For example, *Arion ater* is known in Scotland as the black snail, rather than slug.

I often use my own common names very informally in talks and people find these very helpful as a handle in slug identification. These names depend on particular obvious features of the species. For instance, *Deroceras invadens (*which used to be *D. panormitanum*) I call the 'racing' slug. Put all your slugs in a heap and see which is first to move and moves fastest. Much easier to grasp to the uninitiated than Caruana's slug. Mucus texture and colour is often useful in species identification. *Arion subfuscus,* I call the 'yellow stainer'. Stroke it gently and look at your finger tip to see why. Then, as you rub the mucus off your finger, perhaps into the palm of your other hand, you will notice its wonderful skin-rejuvenating properties. (Fig 1 Pg.36.) *Deroceras reticulatum* will yield, very readily, a chalky white, watery mucus. I like to call it the 'milk of magnesia' slug. Stroking *Arion ater* should have two results. First, is the rather hard-to-remove colourless mucus on

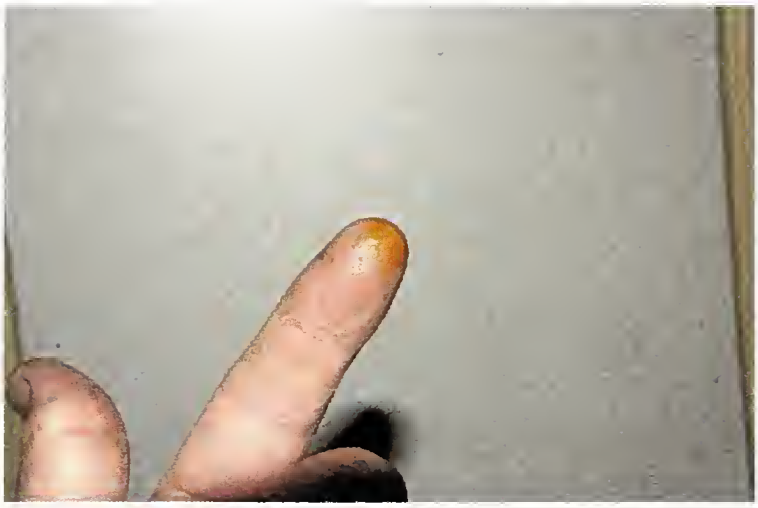

Fig. 1 The yellow spot - a sure sign of *Arion subfuscus*.
Picture Chris du Feu

the finger tip. Second, and more important for identification, is a characteristic swaying response by the slug - one of nature's spectacular sights. Why do they do it? No one knows, but if it was useful in repelling predators, *Arion rufus* and the other closely related species would exhibit the same strong response which they do not.

Outcomes of the workshops have been productive. Often members of the group say that they will now look at slugs in a new light and realise that slugs are a group of species rather than being just slugs. They appreciate that some species are not pestilential. Indeed some may be beneficial to gardeners in various ways. Distribution records have given the most tangible outcome of these workshops, providing confirmation that some species still are present after not being recorded for many years, providing new evidence of species which are spreading, or just filling gaps in the national records which exist simply because of under-recording. But these workshops also complement much species recording. Imagine a typical naturalists' field visit to record species. Where do they go? Obviously into some exciting habitat where they expect to find rare species, possibly last recorded there by some Victorian reverend gentleman naturalist. Not so often will you find the field visit operating in mundane garden habitats. Thus, these workshops give records of species which may be particularly associated with human habitats. Often newly introduced slug species are spread by human agency, garden to garden. John Redshaw recently published a check list of Lincolnshire terrestrial molluscs. The general balance of some species is rather different from what appears at slug workshops. We will look at three species as examples of this.

The yellow slug *Limax flavus* is noted as being '*a very local species found in association with man'*. The latter part is true but from slug workshops it would appear that it is widespread, as it almost invariably appears at workshops. Its apparent localness must result from under-recording in human habitats. Even though it is large and obvious, it is highly nocturnal, coming out from its lair to graze on algae, mould and general decaying matter when good people are fast asleep. It is also frequently found in compost bins, often roosting under the lid or hidden under the lip of the bin.

A second species, also very often found in compost bins, is *Lehmannia valentiana* the Spanish slug which is noted as a rare species. In fact, this is now a frequent find at workshops but its present distribution seems to be almost exclusively in garden habitats. Having been recorded in the county for only 15 years, it has yet to spread beyond the human habitats where our species has been so effective at introducing it. Incidentally, it is fairly benign. It may attack young green plants but only in desperation. It finds algae and decaying matter much more attractive. Black compost bins which have the decaying matter and, often, a useful layer of green slime under the lid, are ideal for them.

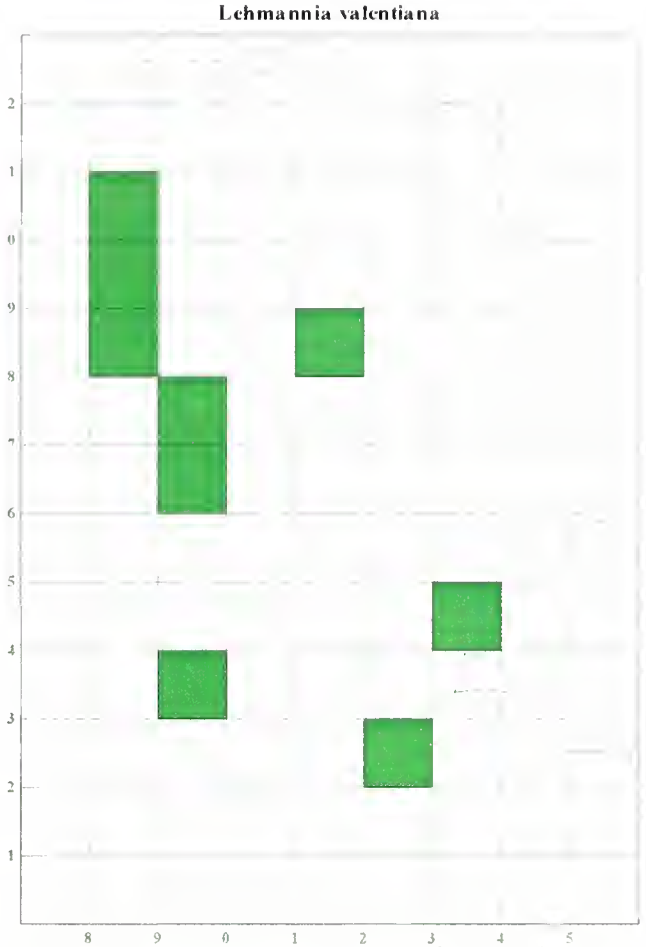

Fig.2.10 km records of *Lehmannia valentiana* in Lincolnshire.

A third species, *Arion intermedius* (the unhelpfully named hedgehog slug) is listed as '*common and widespread though not often found in gardens*'. Workshop records of this species would suggest it is very rare in Lincolnshire - John Redshaw's checklist comment about gardens is well justified. Gardens generally have richer soils than in the surrounding countryside and *Arion intermedius* is one species which thrives on impoverished soils. No wonder it is workshop-shy.

Why bother with slug distributions? Surprisingly these are changing very rapidly. It seems they respond rapidly to environmental change and human activity. Undoubtedly a major factor in slug introductions is inadvertent human dispersal, However, in recent years this seems to be coupled with changed environments that allow species to survive and even to thrive. How else can the fast colonisation of the county (and country) by *Lehmannia valentiana* be explained? It must have been travelling to us from the Iberian peninsula ever since humans have been travelling between there and here, and that is thousands of years. It was first recorded in glasshouses in the UK in 1948 but never outside until 1981. It does not appear in the 1976 mollusc atlas (Kerney, 1976) and in the Collins field guide (Kerney & Cameron 1979) is mentioned only briefly as a greenhouse-living alien. In the 1999 atlas (Kerney, 1999) it boasts just 17 10 km records of which one is in Lincolnshire.

Contrast this with the records in Lincolnshire since 1999 derived mainly from slug workshops (above). We live in this time of unprecedentedly rapid environmental change and we will have just one chance to record these changes. If we do not do it now, it will not be done. Look at the national and local distribution maps and contemplate the effort put in, by so many people, in the compilation of these records over very many years. What a rich resource they are. It would be a pity if we did not add our own contributions to leave for future generations - particularly as they will be suffering the environmental problems bequeathed by our generation.

It is just possible that some people may remain unconvinced that slugs are the most fascinating group of species to inhabit this Earth. Never mind, similar arguments will probably apply to other less interesting but still under-recorded groups. What about a woodlouse walkabout, platyheminth project, earwig expedition, millepede mission, or tapeworm trek? None of us can do everything, but should we not all do something?

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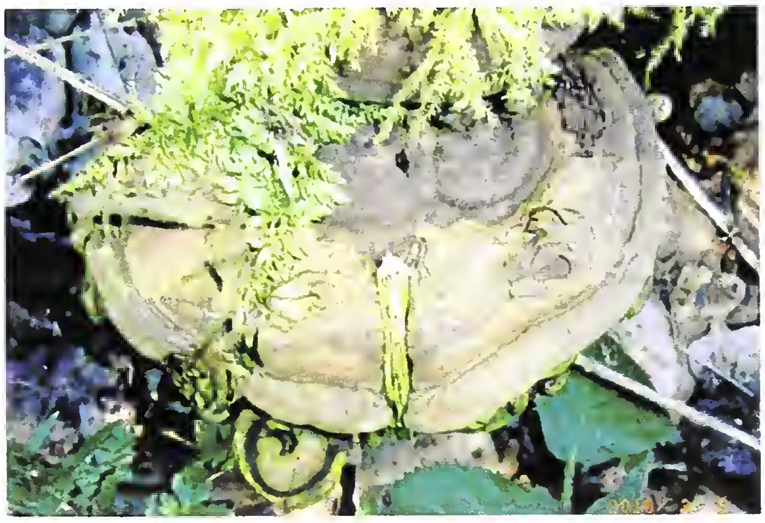
A RARE FUNGUS GALL IN LINCOLNSHIRE.

Ken Rowland and Jane Ostler

Some time ago Jane Ostler sent me a large *Ganoderma aplanata* bracket fungus from Morkery Wood with some rather peculiar wart-like structures on the underside. On investigation, this turned out to be a gall caused by a small fly by the name of *Agathomyia wankowiczi* (not in any of my books and don't ask me to pronounce that). I understand that it belongs to the Platypezidae family generally known as 'flat-footed flies' which must be for some good reason. So here we have a specimen that can be recorded in three sections of the LNU, namely Fungi, Galls and Diptera.



The affected *Ganoderma aplanata*

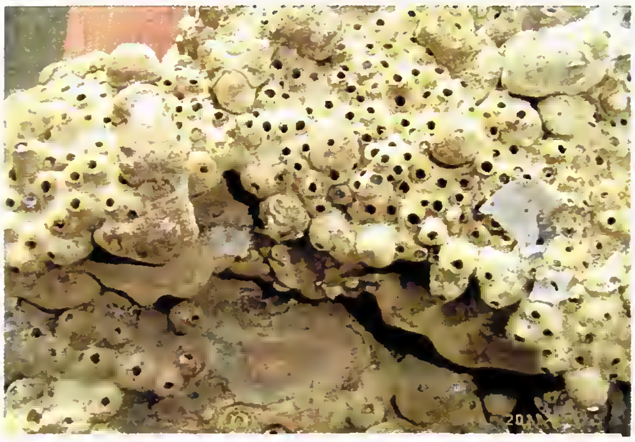
Picture Jane Ostler

This gall is rated as being quite rare and the causing fly has only been captured on one occasion in the county (one male and one female). The galls grow on the underside of brackets fairly low on the tree trunk. When the larvae are ready to leave, they fall to the ground and pupate in the soil or litter. Looking at the large quantity of galls on this bracket specimen, and the number of attacked brackets Jane has found, it does make one wonder just how rare this fly is.

The original specimen languished in my study for some considerable time during which it suffered from a very severe attack of woodworm or other insect damage to the extent that I ended up with a heap of small particles not really suitable for identification purposes.

So to *Agathomyia wankowiczi* !! Following Jane's request to the Trust Convention Meeting at Horncastle on 12th November suggesting that an article for 'Transactions' might be of interest, I sorted out the photographs. I then suddenly realised that owing to the poor shape, we were perhaps not dealing with *G. applanata*, but possibly a species that grows on Oak, *Daedalea quercina*. So! The question now was, what was do we have: a new host for *Agathomyia wankowiczi* or a new gall?

Jane was asked to forthwith examine or retrieve a further specimen to confirm the identity of the fungus, to look for any pupae in the ground underneath, or even to attempt to trap some larvae as they fall to the ground. By December 8th, Jane had collected a specimen fruiting body literally covered in galls. The pore surface shown on the latest photos looks very much like that illustrated in 'Fungi of Switzerland', Volume 2, species 425 for *Ganoderma applanatum* in which this galling is also discussed. Jane mentions that the tree was a birch (*Betula pendula*), now suffering from "white rot", not surprising as this is what *Ganoderma* would cause, and Birch is listed as one of the host trees. The specimen fungus is now residing in Jane's garden over a tray to catch any stray larvae attempting to leave, since according to Brian Spooner, the flies have only been seen on one occasion in the country.



Galls under Ganoderma applanatum gall

Picture Jane Ostler

LINCOLNSHIRE NATURAL HISTORY IN 2011

FUNGI

Ray Halstead

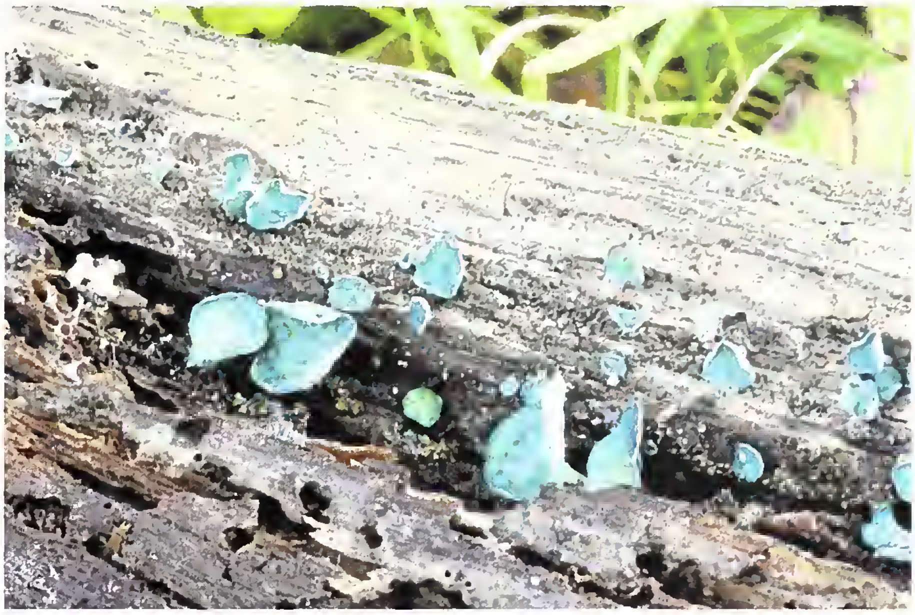
The spring fungi season was almost non-existent this year due to the markedly dry March and April with a resulting lack of records, the only exception being *Polyporus squamosus* that I seemed to find almost everywhere.

It was still dry throughout August, September and October resulting in fewer fruiting bodies and some species not bothering to send up fruit bodies at all, particularly the *Russula* and *Lactarius*. If dry conditions persist it is not unusual to find few fruit bodies; a fungus is about 90% water and using this precious resource in order to reproduce is deemed unnecessary. This has been particularly well demonstrated this year as most fungi waited until the moist conditions which occurred towards the end of October and into November. Whereas this may all appear rather negative the lack of fruit bodies during the typical fungi season encourages us to search that little bit harder and as a result some quite interesting species have been found and recorded this year. For example *Russula pectinata* in Legsby Wood, *Suillus luteus* and *S. granulatus* in Willingham Woods,

Polyporus squamosus

Picture Ray Halstead

Chalciporus piperatus in Osgodby Plantation, *Coprinellus domesticus* and *Orbilia delicatula* in Normanby Hall Country Park and *Pleurotus dryinus* in Muckton Wood. A most interesting find in Legbourne Wood, which I must attribute to my sharp-eyed daughter, was *Helvella macropus*, not particularly due to its rarity more due to its lack of size and that there was only the one fruiting body. *Chlorociboria aeruginascens*, the fungus that turns its wood substrate a blue-green colour, turned up at Callan's Lane Wood and twice at Chamber's Farm Wood including one small log with the splendid fruiting bodies.



Chlorociboria aeruginascens

Picture Richard Scott

This year I have been able to visit 23 sites across the county from Normanby Hall Country Park in the north to Callan's Lane Wood in the south and from Laughton Wood in the west to Legbourne Wood in the east. This has allowed me to cover a quite diverse range of woodland and soil types. More grassland would have been included on the itinerary but the dry conditions gave rise to poor fungal fruiting in this type of habitat. Six public forays have been held this year at Langholme Wood (LWT, Axholme group), Normanby Hall Country Park (North Lincs Council), Muckton Wood (LWT, Grimsby area group), Chamber's Farm Wood (Forestry Commission), Callan's Lane Wood (LNU), and Whisby Nature Park (LWT/LCC).

The beginning of October saw the annual trip to Saltfleetby/Theddlethorpe Dunes Reserve to check on the progress of our colony of *Battarrea phalloides* and I was pleased to find six fruiting bodies this year. I had hoped to observe them prior to the release of their spore sac, (peridium), but was too late again and have therefore made a note to visit in early September 2012. I heard from Tony Leech in Norfolk towards the end of August and he informed me that they have just discovered their sixth colony of *B. phalloides*. There is potential for more sites for this species in Lincolnshire and it would be great to have time to investigate this further. Gibraltar Point is a likely candidate, so if anyone is there any time from August onwards then do please keep an eye out for it.

In July I received an e:mail from Bert and Gill Brand who were conducting a survey on rust fungi on Red Campion, *Silene dioica*, asking me to look out for *Puccinia* *arenariae* and *P. behenis*. The former is quite common throughout the UK, the latter much less so with no records for Lincolnshire despite it becoming more apparent since 2000. Twigmoor Woods near Scunthorpe proved to be successful for both species and *P. behenis* is now on the map in VC54.

For a good part of the year I have been helping Wendy and Geoff Handford to identify and record the mycology in their garden at Caistor. This is quite a large garden with a range of habitats from rough and mown grassland to deciduous and coniferous woodland. I have just received the list that contains 61 different species over a three-year period including *Mutinus caninus*. Gardens, no matter how large or small, are well worth recording. In my own ¼ acre garden this year I have recorded 19 species including one, *Mycena olivaceomarginata*, fruiting in profusion in the centre of the lawn, a species more commonly associated with unimproved grassland. What does that say about the state of my lawn?

Battarrea phallaides

Picture Ray Halstead

Up to the end of 2010 there were 55234 records on the Lincolnshire database, hopefully this season we should be able to add a further 800 to that number. The database is currently undergoing an update, and where possible all fields that contain just initials are being replaced with the names of the people associated with those initials. This is proving to be an interesting historical exercise that could take some time to complete. The resulting database will not be released to LERC, ABFG and the BMS until this is completed to the best of my abilities.

My thanks as usual to all those who provide records for the year, please continue the good work however insignificant the record may seem, as each one helps towards the bigger picture. Special thanks to Jackie and Ken for their assistance on the public forays and for Ken in helping to sort out the more difficult stuff. A new recruit to the team this year has been Richard Scott whose skill with a microscope and camera is going to be most useful over the forthcoming years.

MOSSES, LIVERWORTS AND LICHENS

M. R. D. Seaward

As well as new discoveries, it is pleasing to note the continued re-establishment of liverworts, mosses and lichens (mainly epiphytes) throughout much of the county. Of particular interest are the new lichen assemblages developing on trees, especially on young trees: in addition to the re-establishment of white crustose species and large foliose and fruticose species mentioned in last year's report, huge areas of the county have been, and continue to be, subjected to excessive levels of mainly nitrogenous products derived from agricultural practices and animal husbandry. In the latter case, the dramatic changes are particularly noticeable from late autumn to early spring when the leafless trees and shrubs are shrouded in an orange-yellow, nitrophilous lichen flora dominated by *Xanthoria* species. Such a panorama was unknown two decades ago and can be viewed at speed from one's car; however, a closer inspection of this hypertrophicated (not eutrophicated) phenomenon will reveal a more complex assemblage of several foliose lichens, particularly species of *Physcia* and *Parmelia* s.lat., as well as particular mosses which are thriving due to nutrient enrichment. Other noticeable foliose lichens, formerly rare in eastern counties and now clearly on the increase in Lincolnshire, are *Flavoparmelia caperata*, *F. soredians* and *Parmotrema perlatum*.

Additional bryological and lichenological work on churchyards has furnished interesting records. In the case of the British Lichen Society's churchyard survey, a further 12 churches were visited for the first time (and 4 were revisited) by the author in 2011. To date, 595 (representing nearly 88% of the C. of E. churchyards in the county) have been lichenologically researched. It is with considerable regret that I have to report the virtual demise of *Ramalina capitata* at its key site in Lincolnshire (and indeed Britain), where now only a single, small depauperate thallus struggles on, having totally disappeared from neighbouring tombstones. Its demise since the late 1990s may have resulted from changes in the churchyard's management, but I must question the policy, under freedom of information, of publishing overly specific details of the habitat and location of such rarities which consequently become targeted species for the collector. Since its discovery at this site, it has fortunately been recorded from a few other Lincolnshire (and two York-shire) churchyards, the details for some of which have also been published (perhaps unfortunately). It is to be hoped that its status at these sites will remain intact and that lichenologists, as well as those who manage churchyards, will leave this rare lichen undisturbed, giving it a chance to increase, albeit slowly. Its status in the county is currently being monitored by the author.

The records contributed by M.O.Hill on behalf of the Cambridge Bryology Group (CBG), C.A.Howes (CAH), F.R.Lammiman (FRL), C.Rieser (CR) and M.R.D.Seaward (MRDS) are for 2011 unless otherwise stated. A re-examination of herbarium specimens collected by C.A.Howes and the author has also added new records. As a consequence of this work, three county (*Cladonia incrassata*, *Lecanora stenotropa* and *L. zosterae*), six vice-county (*Orthotrichum stramineum*, *Rhynchostegium megapolitanum, Lecanora hagenii*, *L. stenotropa*, *L. symmicta* and *Physconia perisidiosa*), 66 divisional and innumerable grid square records have been added to our registers.

The bryophyte and lichen nomenclature is mainly according to Hill *et al.* (2008) and Smith *et al.* (2009) respectively.

Mosses

Brachythecium mildeanum (Schimp.) Schimp. + 6 (FRL & CR)
Bryum moravicum Podp. + 4 (FRL & CR)
B. radiculosum Brid. + 16 (CBG)
B. ruderale Crundw. & Nyholm + 16 (CBG)
Orthotrichum stramineum Hornsch. ex Brid. + 9 (on foreshore, Rimac NNR, April 2011, FRL & CR, **VCR**)
Oxyrrhynchium pumilum (Wilson) Loeske + 7 (FRL & CR)
Polytrichum piliferum Hedw. + 6 (FRL & CR)
Rhynchostegium megapolitanum (Blandow ex F.Weber & D.Mohr) Schimp. + 16 (rough grass by large fen drain, Great Postland, Jan. 2011, CBG, **VCR**)
Schistidium crassipilum H.H.Blom + 16 (CBG)
Syntrichia virescens (De Not.) Ochyra + 4 (FRL & CR)
Tortula modica R.H.Zander + 16 (CBG)
Trichodon cylindricus (Hedw.) Schimp. + 16 (CBG)
Weissia longifolia Mitt. var. *longifolia* + 16 (CBG)

Lichens

Arthonia radiata (Pers.) Ach. + 3 (MRDS)
Arthopyrenia punctiformis A.Massal. + 3 (MRDS)
Candelariella reflexa (Nyl.) Lettau + 1 (MRDS), 4 (MRDS)
Catillaria chalybeia (Borrer) A.Massal. + 1 (MRDS), 2 (MRDS)
Cladonia incrassata Flörke + 1 (on peat, Crowle Moors, 1981, CAH, **NCR**)
C. ochrochlora Flörke + 3 (MRDS)
C. polydactyla (Flörke) Spreng. + 3 (MRDS)
C. squamosa Hoffm. var. *squamosa* + 3 (MRDS)
Collema auriforme (With.) Coppins & J.R.Laundon + 1 (MRDS)
Diploschistis scruposus (Schreb.) Norman + 14 (MRDS)
Evernia prunastri (L.) Ach. + 1 (MRDS)
Flavoparmelia caperata (L.) Hale + 3 (MRDS), 10 (MRDS)
F. soredians (Nyl.) Hale + 1 (MRDS), 3 (MRDS)
Hypotrachyna revoluta (Flörke) Hale + 6 (MRDS)
Lecania cyrtella (Ach.) Th.Fr. + 1 (MRDS)
Lecanora carpinea (L.) Vain. + 2 (MRDS), 14 (MRDS)

L. hagenii (Ach.) Ach. + 2 (MRDS), 3 (on *Fraxinus*, Far Ing N.R., May 2011, MRDS, **VCR**)

L. persimilis (Th.Fr.) Nyl. + 1 (MRDS), 3 (MRDS)

L. saligna (Schrad.) Zahlbr. + 1 (MRDS), 3 (MRDS)

L. stenotropa Nyl. + 8 (on gravestone, Withcall, May 2002, MRDS, **NCR**), + 14 (on gravestone, Wilsford, Oct. 2011, MRDS, **VCR**)

L. sulphurea (Hoffm.) Ach. + 13 (MRDS)

L. symmicta (Ach.) Ach. + 1 (on *Malus* etc., Crowle Moor, June 2011, MRDS, **VCR**), 3 (MRDS)

L. zosterae (Ach.) Nyl. + 11 (on *Suaeda*, Gibraltar Point, July 1981, CAH, **NCR**)

Lecidella elaeochroma (Ach.) M.Choisy + 14 (MRDS)

Leptogium turgidum (Ach.) Cromb. + 3 (MRDS)

Melanelixia subaurifera (Nyl.) O.Blanco et al. + 1 (MRDS)

Micarea misella (Nyl.) Hedl. + 1 (MRDS)

Opegrapha calcarea Turner ex Sm. + 14 (MRDS)

Parmotrema perlatum (Huds.) M.Choisy + 1 (MRDS), 3 (MRDS), 6 (MRDS), 10 (MRDS, 2009), 15 (MRDS)

Peltigera hymenina (Ach.) Delise ex Duby + 14

Physconia perisidiosa (Erichsen) Moberg + 13 (on siliceous tombstone, Timber land church, Aug. 2011, MRDS, **VCR**)

Punctelia jeckeri (Roum.) Kalb. + 3 (MRDS)

P. subrudecta Nyl. s.lat. + 6 (MRDS, 2007)

Ramalina canariensis J.Steiner + 3 (MRDS)

Schismatomma decolorans (Turner & Borrer ex Sm.) Clauzade & Vezda + 3 (MRDS)

Solenopsora candicans (Dicks.) J.Steiner + 15 (MRDS)

Xanthoria elegans (Link.) Th.Fr. + 14 (MRDS)

X. ucrainica S.Kondratyuk + 1 (MRDS), 4 (MRDS)

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BRYOPHYTES

Christine Rieser and Frank Lammiman

Epiphytic bryophytes are still spreading back to the east side of the country from the damper and less polluted west and we have one new record for vc54. The moss *Orthotrichum stramineum* was found on old elder at the back of the maritime marsh at Rimac. It was seen here with young spore capsules recognisable by the typical calyptras with the dark red apex. The species was confirmed microscopically and was accepted by the British Bryological Society as indicative that the species had arrived at the North Lincolnshire coast.

Other epiphytes of interest found this year included one of the less common *Orthotrichums*, *O .lyellii* growing amongst multiple tufts of *Orthotrichum affine* on sycamore at Ruckland, a new 10k square site for the species. This plant was particularly interesting as it had, very unusually the spore capsules as well as the characteristic prolific leaf gemmae. At this site we also found another pollution sensitive species *Cryphaea heteromalla* which has not been recorded very often recently. This is recognisable in the field by the capsules on short side branches and can be seen standing up erect on the branch of an elder.

Frullania tamarisci

Picture Christine Rieser

New sites were also found for epiphytic liverworts such as *Frullania dilatata* and we were pleased to find *Frullania tamarisci* at a new site in Legbourne Wood. This species is rare in Lincolnshire.

Other mosses of interest include the handsome species *Climacium dendroides* which has been thought of as in danger on the east side of the country. Last year we reported the loss of this plant from a known site on the coast at Churchill Lane, Theddlethorpe, but we have now discovered two independent sites at Rimac where it is growing well on sandy soil and on the dunes.

Liverworts are never easy to find in the dry climate of Lincolnshire but a small patch of the leafy liverwort, *Lophozia ventricosa* was found on a rotten log at Linwood Warren where it had been recorded once before in 1999. This has a forked leaf with bunches of gemmae at the apex of each fork.

Riccardia chamedryfolia from Legbourne

Picture Christine Rieser

The thalloid liverwort, *Riccardia chamedryfolia* was found growing on soil at a ditch bank in Legbourne Wood amongst various mosses.

BOTANY

Paul Kirby

Seven field meetings were held in 2011:

April 17	Wilsford Heath Quarry SSSI, SK94
May 15	Priory Farm, Orford, TF19
June 19	Park Farm & Great Eau, Healey Lane, TF48
July 3	South Farm, Thurlby, SK96
August 13	Alkborough Flats, SE82
September 24	Riseholme College, SK97
October 23	Fungus Foray. Callan's Lane Wood, TF02

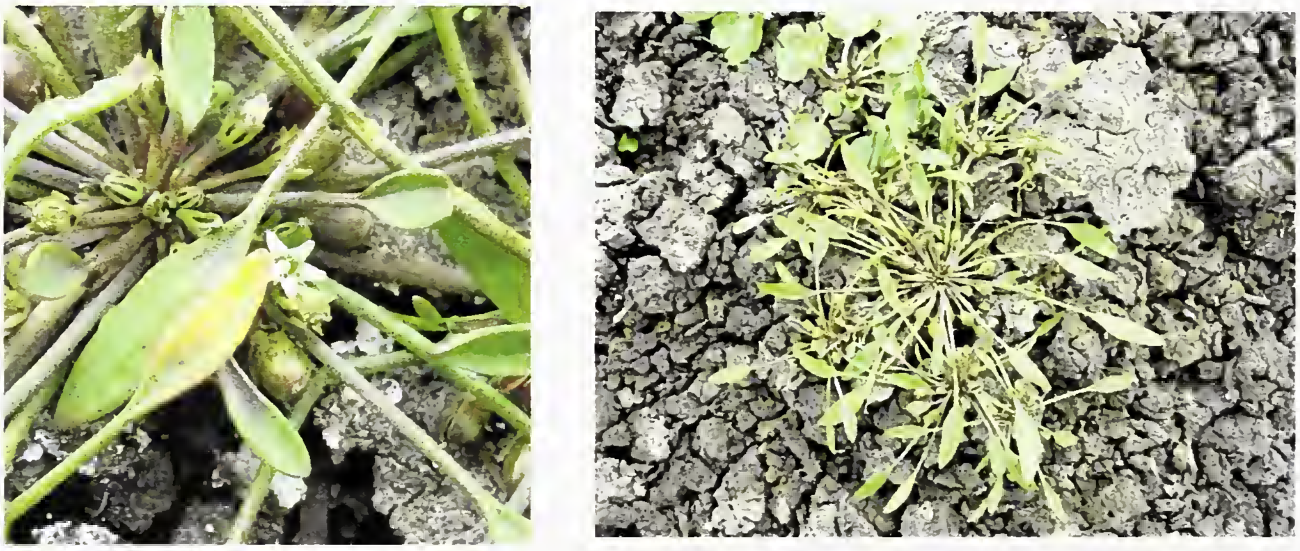
Among the plants found at the meetings were: black spleenwort *Asplenium adiantum-nigrum*, spurge-laurel *Daphne laureola*, autumn gentian *Gentianella amarella* and hairy violet *Viola hirta* in the Wilsford Heath Quarry; small-leaved lime *Tilia cordata*, 2 large old pollards in a field hedge on Priory Farm; whorl-grass *Catabrosa aquatica*, water horsetail *Equisetum fluviatile,* corn parsley *Petroselinum segetum* and knotted hedge-parsley *Torilis nodosa* on Park Farm; flowering rush *Butomus umbellatus*, bristle club-rush *Isolepis setacea*, water dock *Rumex hydrolapathum* and marsh woundwort *Stachys palustris* on South Farm, Thurlby; greater tussock-sedge *Carex paniculata*, small pondweed *Potamogeton berchtoldii,* brackish water-crowfoot *Ranunculus baudotii* and, a real surprise, common cotton-grass *Eriophorum angustifolium* on Alkborough Flats; lesser water-parsnip *Berula erecta*, hop *Humulus lupulus* and thorn-apple *Datura stramonium* at Riseholme; wall lettuce *Mycelis muralis,* an uncommon plant in Lincolnshire, was found at both the Wilsford and Riseholme Meetings.

BSBI Threatened Plant surveys.

The species covered in 2011 included lesser water-plantain *Baldellia ranunculoides,* round-fruited rush *Juncus compressus* and burnt orchid *Orchis ustulata,* now *Neotinea ustulata*. All three have undergone a major decline in the County. There are records for the rush from forty hectads all time but post 2000 it has only been seen in nine. Comparable figures for the water-plantain are 29 and 9. Burnt orchid, only ever recorded from 11 hectads, is now restricted to a single site, a small isolated meadow in the Isle of Axholme. Here a small colony flourishes. 127 flowering spikes were counted in 2011.

A sample of the 25,000+ records received so far for 2011. Some non-native taxa are included. Both garden escapes & bird seed introductions are steadily becoming more widespread and diverse.

Mudwort *Limosella aquatica.* In June 2011 Jeremy Fraser discovered a large population of this nationally scarce annual on Butterwick Hale, SE80. This is the first time it has been seen in Lincolnshire for over 150 years and only the third record for the County. The plants (see photos below), which have tiny flowers of c.3mm in diameter, were growing on bare mud in a dried up flash. The mudwort was locally abundant and the differing stages of the plants from the margins towards the pond centre clearly illustrated the sequential development of the colony as the water level fell. Commoner associates were pink water-speedwell

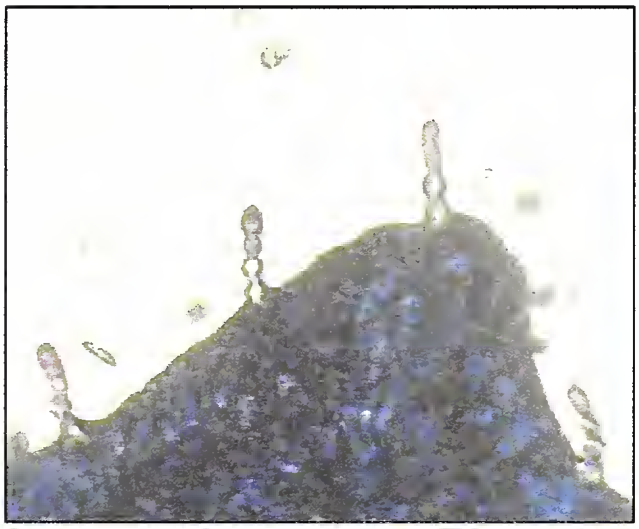


Mudwort Limosella aquatica. at Butterwick Hale

Pictures Paul Kirby

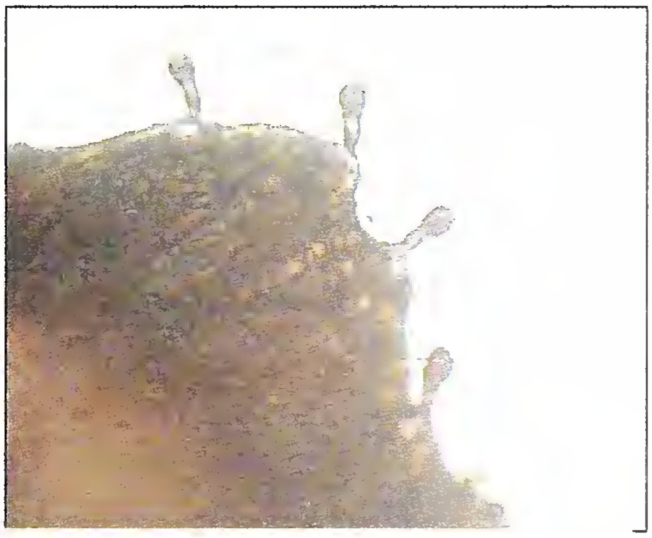
Veronica catenata, toad rush, *Juncus bufonius*, celery-leaved buttercup *Ranunculus sceleratus*,redshank *Persicaria maculosa* and marsh yellow-cress *Rorippa palustris.* Water-pepper *Persicaria hydropiper,* red goosefoot *Chenopodium rubrum,* marsh cudweed *Gnaphalium uliginosum,* spear-leaved orache *Atriplex prostrata* and knotgrass *Polygonum aviculare* were also present.

Blue pimpernel *Anagallis arvensis* ssp. *foemina,* TA02, Stuart Smith. One plant in flower on bare ground under a hawthorn bush (see photo p.50) and another smaller plant nearby, but gone over. Apart from a few records from dumps, this striking flower has rarely been recorded in Lincolnshire. It was last seen at Aunby in 1991. Scarlet pimpernel *Anagallis arvensis* ssp. *arvensis* is widespread in the County and almost invariably the plants are the red flowered f. *arvensis.* However 5 other colour variants, namely forma *azurea, carnea, lilacina, pallida* and *viridifolia* have been described. In the past it is thought that plants of blue flowered ssp. *arvensis* f. *azurea* have been confused with those of ssp. *foemina.* Probably the most useful feature for separating the two is the structure of the hairs along the edge of the corolla. In ssp. *foemina* the hairs have 4 cells and the most distal cell is ellipsoid whereas in ssp. *arvensis* there are only 3 cells and the distal cell is globose, (Stace 2010). Photographs (see above) of the corolla hairs of the above plant and those of a plant of ssp. *arvensis*, clearly show the different numbers of cells and a generally more globose distal cell in the ssp. *arvensis.*



Anagallis arvensis ssp. foemina corolla hairs

Picture Bill Meek



Anagallis arvensis ssp. arvensis corolla hairs

Picture Bill Meek

Nitella mucronata var. *gracillima*, SE90 & SE91, JF & PK. New County record. Found at several sites in the New River Ancholme & also in the Old Ancholme. Determined by N. F. Stewart, the BSBI Charophyte referee, who commented *'N. mucronata* is a nationally scarce species but I think this *gracillima* strain is probably an introduction originating from garden centres'.

Water-primrose *Ludwigia grandiflora.* In late November a colony of this ornamental aquatic was identified by the Environment Agency in SK84.

Anagallis arvensis ssp. *foemina* plant

Picture Bill Meek

This is the first time this attractive, but vigorously invasive South American plant, has been found 'wild' in the County. Water-primrose has become a serious pest on the continent, notably in France, where it has over-run wetlands and obstructed waterways, displacing native species in the process. It is thought likely that it will cause similar problems in Britain should it get established and so steps are being taken to eradicate known populations. At one time it was readily available in England from plant nurseries, but now horticultural trade organisations are recommending that their members withdraw it from sale and destroy any existing stock.

Green-flowered helleborine *Epipactis phyllanthes* var. *vectensis*. Under mature beech along the 'verges' of a hardcore track in SE80, John Petyt & John Davison. Determined by Professor A. J. Richards, BSBI Epipactis referee. First record for *E. phyllanthes* in Vc54 & first record in the County for var. *vectensis*.

Various-leaved fescue *Festuca heterophylla*, Leake Commonside, TF35, Owen Mountford. Under plantation woodland (presumably introduced originally). New for Lincolnshire.

Narrow-leaved water-plantain *Alisma lanceolatum*, Newlands, SE80, PK & CH. Recorded from very few sites in the last 10 years.

Black-spleenwort, *Asplenium adiantum-nigrum*, TA 40, David Harrison. New for hectad. Growing on a sandy spit with Maidenhair Spleenwort *A. trichomanes*.

Loose silky-bent *Apera spica-venti*, 3 locations in the Wroot area, SE70, PK & JF. Scarce in the County.

Water-fern *Azolla filiculoides*, TF25, Keith Robertson. 3 sites in TF25. Becoming increasingly widespread.

Summer cypress *Bassia scoparia*, SK88, Brian Hedley. New for hectad. First seen in the County near North Killingholme Haven in 1993.Then over the next 6 years it spread along the margins of the A180 & M180 before almost disappearing. It is now seen only occasionally as a scattered casual.

Slender hare's-ear *Bupleurum tenuissimum*, Cut End, TF33 Vc54 & Trusthorpe TF58, P. & J.N.J. Kirby. A large population was found along the foot of the Witham flood bank [north side] at Cut End. The plants were confined to a narrow 1m. wide strip just above the upper edge of the saltmarsh. A further population was confirmed as still present on the back of the sea wall at Trusthorpe. A nationally scarce plant, easily overlooked especially when vegetative.

Divided sedge *Carex divisa*, SE92, JF. Already known to occur in SE92, but this was a new location in the hectad for this nationally scarce sedge.

Bottle sedge *Carex rostrata*, SE90, JF and Bladder-sedge *Carex vesicaria*, TF38, David Harrison. Updates for both these sedges at known locations. Both are very scarce in Lincolnshire.

Sea fern-grass *Catapodium marinum,* Skegness, TF56, PK. On stony area in car park. Scarce in the County.

Cirsium x grandiflorum (*Cirsium eriophorum x C. vulgare*), Swinstead Valley TF02, Paul Stanley. An extremely rare hybrid thistle, but one that has been found previously in Vc53, South Lincs (Stace 1975).

Convolvulus tricolor, TF19, David Harrison, determined Mike Wilcox. A garden escape with striking tricoloured flowers. These plants were very unusual in having cut petals, a feature which caused identification problems.

Broad-leaved helleborine *Epipactis helleborine*, TA11, Stuart Smith & Angela Buckle. A large population of over 200 plants. New for hectad.

Violet helleborine *Epipactis purpurata,* Morkery Wood, SK91, Mark Lynes. 2 plants in a clearing adjacent to the former site.

Musk stork's-bill *Erodium moschatum*, Immingham, TA 11, Stuart Smith. Casual. Numerous plants, some very robust, scattered over a wide area on disturbed ground in housing estate. Rarely recorded in the County. Among the musk storks-bill was one plant of pheasant's-eye Adonis annua.

Dwarf spurge *Euphorbia exigua*, arable weed, SK86, Brian Hedley. New for hectad. Growing with prickly poppy, *Papaver argemone*, common cudweed *Filago vulgaris* and field madder *Sherardia arvensis*.

Large-flowered hemp-nettle *Galeopsis speciosa*, SE70, JF and TF07, PK & CH. An uncommon plant in Lincolnshire.

Dyer's greenweed *Genista tinctoria*, TF08 & TF39, PK. In TF08 there were at least 12 plants in 3 patches on the verge of Mill Lane, near Cold Hanworth. Miss Gibbons recorded it here in 1965 but there have been no records since from this area. In TF39 there are still several patches on the disused Louth to Grimsby railway line, where it was first found in 1984. The present population is in danger of being over-run by advancing scrub. An uncommon plant in the County, currently known from only 9 hectads.

Fragrant orchid *Gymnadenia conopsea*, South Ferriby, SE92, Stuart Smith. 2 plants. Now a very rare plant in Lincolnshire and currently only known from 2 sites, one in each vice-county.

Round-fruited rush *Juncus compressus*, SK79, PK & CH. 1 small patch in rough grassland.

Saltmarsh rush *Juncus gerardii*, Burgh le Marsh, TF56, PK & CH. 1 patch in ditch on south side of new by-pass. The second inland record for Vc54.

Venus's looking-glass *Legousia hybrida*, TA 02, 4 plants at edge of arable, Stuart Smith. TA 01, a single plant at edge of a minor road & TF37, a single plant in arable edge, PK & CH.

Tubular water-dropwort, *Oenanthe fistulosa*, Tattershall Pits & Dogdyke, TF25, Keith Robertson. Recorded by Miss Gibbons from Tattershall Pits in 1954 and near Dogdyke in 1962, but no further records from these locations until 2011.

Herb-paris *Paris quadrifolia*, Broughton Woods, Far Wood, SE91, Stuart Smith. 200+ plants. First record from SE91 for many years.

Lousewort *Pedicularis sylvatica,* Moor Farm LWT Nature Reserve, TF26, Dave Bromwich. A new location at Moor Farm, where the plant has been known for many years. Recorded from 15 hectads all time, the species has undergone a spectacular decline in the County and is now restricted to this reserve.

Pillwort, *Pilularia globulifera*, Whisby Pits Complex - East side of A46 Bypass, SK85, Tim Smith. Several square metres of it with some pure stands and some mixed with New Zealand pigmyweed *Crassula helmsii* and Needle Spike-rush *Eleocharis acicularis*. This population was first noted in 2011 by a Mouchel ecologist watching over the various construction works in the area on behalf of the County Council. Update for only remaining site in the county, where it was last recorded in 2004.

Small pondweed *Potamogeton berchtoldii*, SE70, JF.

Fen pondweed *Potamogeton coloratus,* Epworth, SE 80, PK & CH. Confirmed by Nigel Holmes, BSBI Potamogeton referee. In water 10-15cms deep in a field ditch. Though well known from Baston Fen in the south of the County, it has never been recorded consistently at any sites in the north.

There is a chance that it is being over-looked as it appears to favour shallow water in smaller watercourses and these tend to be omitted from drain surveys.

Blunt-leaved pondweed *Potamogeton obtusifolius,* Whisby Pits Complex, East side of A46 Bypass, SK9673, Vc53, Tim Smith. In a drainage channel associated with old gravel pits. There are few records for this pondweed in the County but it has long been known from locations in the Lincoln area in both SK96 & SK97.

Cornfield knotgrass *Polygonum rurivagum, S*E81, PK. Several plants in margin of wheat field. New for hectad and only 4th record for the County.

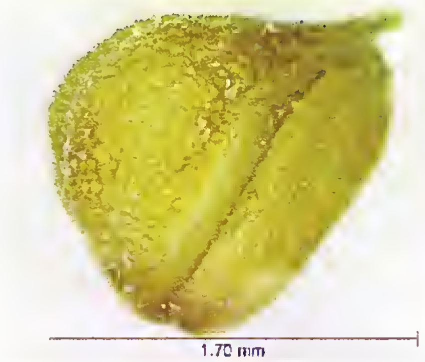
Dwarf cherry *Prunus cerasus,* TF2494, PK . Freely suckering and forming 20m. of roadside field hedge. The distribution of this cherry is unknown in the County.

Sea pearlwort *Sagina maritima*, TF15, Vc54, PK. On sandy verge of A153. Growing with abundant buck's-horn plantain *Planatago coronopus*. First inland record for County.

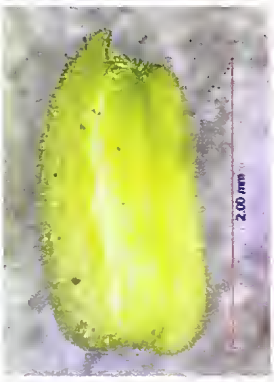
Rue-leaved saxifrage *Saxifraga tridactylites*, TA21, Bill Meek. New for hectad.

Salsify *Tragopogon porrifolius*, TA11, Bill Meek. Casual. A species with an interesting association with Linnaeus who is "usually given the credit of publishing the first account of an artificially made species hybrid, which he produced by pollinating a plant of Salsify with pollen from Goat's-beard *Tragopogon pratensis*" (Walters 1993).

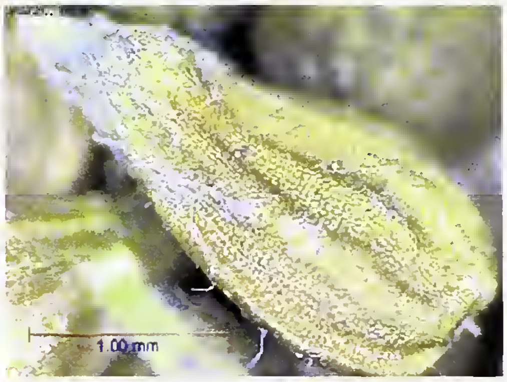
Common cornsalad *Valerianella locusta,* Narrow-fruited cornsalad *V. dentata* and Keeled-fruited cornsalad *V. carinata* are the three *Valerianella* taxa currently found in Lincolnshire. Fruit shape is an easy way of distinguishing them and photos of the fruits of these three species are shown below.



Valerianella locusta fruit



Valerianella carinata fruit



Valerianella dentate fruit

Pictures Colin Hutchinson

Shepherd's-purse *Capsella bursa-pastoris* rarely features in LNU Botany Reports but certainly earned an entry for 2011 after putting on a spectacular display on the Wolds near Calceby, Here an un-cultivated arable field of around 18 hectares was grey-over with a *Capsella* monoculture. A count showed around 25 plants per square metre indicating a total population of around 4 million. Salisbury (1961) estimated average seed production for shepherd's-purse to be from 3,500—4,000 seeds per plant Thus potential seed production is vast just from one generation. Several generations may be produced in one season. In late May 2012 the field held a cereal crop and there was no shepherd's-purse to be seen, such is the efficiency of modern farming.

Shepherd's-purse *Capsella bursa-pastoris*

Picture Colin Hutchinson

Buffalo-bur *Solanum rostratum*, TF57, Keith Robertson. New for hectad. 4th record in Lincolnshire.

Many thanks to all who sent in records in 2011.

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Key to initials in text
JF, Jeremy Fraser - CH, Colin Hutchinson – PK, Paul Kirby

FRESHWATER INVERTEBRATES

Richard Chadd

Freshwater invertebrate highlights in 2011 were all species of caddisfly.

The author and his Environment Agency colleague, Alex Pickwell, found three larvae of the Nationally Notable species of Family: Polycentropodidae *Plectrocnemia brevis* McLachlan, at Spring Hills, Hemswell (NGR: SK9325391159) on the 1st September. A species of highly calcareous small spring streams and trickles, it had previously been found by the author, also as larvae, at Whitton Springs near Alkborough on the south bank of the Humber in November 2008 (reported in *Transactions* in 2009). These specimens were never confirmed, but the Hemswell material has been verified by the national recorder. Interestingly, most UK records, as at Whitton, tend to be coastal, but the 2011 record is from a population which is at least 30 km inland.

A very welcome visit to spring sites in the Grantham area by Stuart Crofts and Andrew Dixon, accompanied by the author, produced adult records of another polycentropodid *Polycentropus irroratus* (Curtis) and a species of Psychomyiidae *Tinodes maclachlani* Kimmins, in woodland springs at Stoke Rochford Golf Course (NGR: SK9224429001 and SK9220528992, respectively).

P. irroratus is a somewhat local species of weedy streams, decidedly rare in Lincolnshire, and known as unconfirmed larvae from the nearby Cringle Brook (reported in *Transactions* 2006). This adult record acts as a welcome confirmation of the species in the county

T. maclachlani had previously been reported in *Transactions* 2010 as a single, rather poor larval specimen from the Upper River Witham at North Witham, some 7 km from the Stoke Rochford site. A species of trickles over rock-faces by waterfalls, but also small streams on bedrock, the species appears to be very rare in Lincolnshire, with only one other confirmed record from Winterton Beck (reported in *Transactions* 2004). Again, this adult occurrence confirms the species' presence in the Upper Witham catchment and consolidates the record set for the county.

ODONATA

Nick Tribe

The exceptionally warm spring of 2011 encouraged a very early record of black-tailed skimmer *Orthetrum cancellatum* at Rosper Road Pools NR near Immingham on 16th April (Dave Wright). The warm conditions meant that regular north Lincolnshire observer Steve Routledge recorded no fewer than five personal 'earliest ever' records at Messingham Sand Quarry NR on 23rd April (large red damselfly *Pyrrhosoma nymphula*, azure damselfly *Coenagrion puella*, common blue damselfly *Enallagma cyathigerum*, hairy dragonfly *Brachytron pratense* and four-spotted chaser *Libellula quadrimaculata*). Steve followed this up by recording no fewer than 50 hairy dragonflies at the same location on 1st May.

Following the freezing weather of the winter of 2010/2011 it was a pleasure to watch red-veined darters *Sympetrum fonscolombii* oviposting on the Mere at Gibraltar Point NNR on 10th July. This is the first time this behaviour has been recorded since this species was first observed on this site in 1998.

Variable damselfly *Coenagrion pulchellum* has been found at two new locations namely Deeping Lakes NR (Deeping St. James) on 6th May (Dave Mainwaring) and Fiskerton Fen NR near Lincoln on 19th May (Paul Daubney).

A black darter *Sympetrum danae* was also found at Fiskerton Fen NR on 15th September by Richard Davidson. Migrant members of this species are recorded from coastal sites as they disperse from East Anglian sites so an inland find is a good record.

White-legged damselfly *Platycnemis pennipes* was confirmed as maintaining its foothold in the county on the River Welland at Stamford Meadows on 11th June (Nick Tribe).

TERRESTRIAL BUGS

Colin Smith

There has been one new species recorded in the county during 2011, *Dicyphus pallicornis*. It feeds on the lower leaves of foxglove preferring those that are decaying. I have been looking for it for several years and was rewarded with several on the host plant at a site near Saxilby on the 15th June.

Dicyphus sp.

There has been more interest in this order than usual and thanks to everyone who has sent in records especially Wendy Handford, Richard Davidson also Karen and Sarah Hand who have all sent in good lists. Karen and Sarah have recorded *Deraeocoris flavilinea* and *Polymerus nigrita* both species with few previous records.

SHIELDBUGS

Annette Binding

Only eleven species of shieldbug were recorded in 2011 and there were no species new to the county. Notable were the large numbers of *Dolycoris baccarum* recorded by Adrian Royle at Chambers Farm Wood Complex. He recorded 55 on the 17th April and fifty from Great Scrubbs Wood on the 8th May. Also on the 8th May Adrian recorded 40 *Dolycoris baccarum* on the Orchid Ride.

Dolycoris baccarum was new to the county in 2005 (A. Binding, Skellingthorpe Wood) and was first recorded at Chambers Farm Wood in 2006 where it appears to be now well established. The species continues to spread and was recorded from two new sites in 2011.

Allan and I recorded good numbers of *Eysarcoris fabricii* in and around our garden at Willow Court, Washingborough, a species which we also recorded at College Wood. However there were only single records of Parent Bug *Elasmucha grisea, Legnotus limbosus, Troilus luridus* and the Gorse Shieldbug *Piezodorus lituratus.*

Thanks are due to Adrian Royle, Mick Binnion, Brian Hedley, Phil Porter and Ruth Race for sending me records in 2011.

MOTHS

Colin Smith

Moth recording started well in 2011 but the summer let us down. A comment at the end of Geoff Wright's record sums it up "Never seen such low numbers of moths in July and August". Normally these two months account for over half the records but in 2011 it was less than a third. There were some interesting finds however. Martin Gray caught a blossom underwing *Orthosia miniosa* in his garden at Broadhome on 22nd April, the first since 1948. Rachel Scopes caught a scarce tissue *Rheumaptera cervinalis* in her garden at Horncastle on 6th May, the first this century. After a single record last year of red-necked footman *Atolmis rubricollis* there were four records in the north of the county and the one seen by Charlie Barnes in New Park Wood had a crippled wing so must have hatched there. This the first evidence of breeding in the north of the county for this species.

Karen and Sarah Hand caught a Shore Wainscot *Mythimna litoralis* at Addlethorpe on 25th June, a species seldom seen except on the coastline. Martin Gray and myself went to Cleatham Quarry on 5th July to look for Chalk Carpet *Scotopteryx bipunctaria* after finding a single specimen last year. Two were seen flying about as we set up the light traps and by the time we were rained off we had seen at least 18 individuals of this UK BAP species. The 5th August was a memorable night for Alan Dale when he caught small waved umber *Horisme vitalbata* and waved black *Parascotia fuliginaria* in his garden at Low Hammeringham. The former is seldom recorded anywhere other than Gibraltar Point and the latter has not been seen recently anywhere other than Langworth where it is regular.

Waved black *Parascotia fuliginaria*

Picture Rob Petley-Jones

The autumn brought a few migrants to the county, the best being pale-lemon sallow *Xanthia ocellaris*. Karen and Sarah Hand caught one on 30th September in their garden and two were caught at Gibraltar Point on 5th and 13th October, these being the second, third and fourth county records for the species. Roger Labbett caught a scarce bordered straw *Helicoverpa armigera* at Kenwick Park, Louth on 27th September. Martin Gray caught a ni moth *Trichoplusia ni* in his garden on 8th September and also had a very late Vestal *Rhodometra sacraria* on 11th November.

There were several new vice county records for micros during 2011 and some other interesting finds.

Ectoedemia arcuatella - leaf mines found by Martin Gray at Morkery Wood on 2nd September. A new county record.

Adela cuprella - adult found at Fiskerton Fen by Richard Davidson on 1st July. The first since 1948.

Antispila treitschkiella - leaf mines found by Martin Gray at Morkery Wood on 2nd September. A new county record.

Psychoides filicivora - leaf mines found by Martin Gray at Belton Park on 12th November. A new county record.

Ochsenheimeria vacculella – adult caught by Martin Gray at Broadholme on 2nd July. A new county record.

Phyllonorycter mespilella - leaf mines found by Martin Gray at College Wood on 21st October. A new VC54 record.

Acrolepiopsis assectella – bred from larva by Annette Faulkner 27th May. The second county record.

" – adult caught by Ron Fox at Langworth on 19th June . A new VC54 record and the third county record.

Epinotia sordidana – adult caught by Robert Woods at Scunthorpe on 21st July. A new county record.

Platytes alpinella – adult caught by Robert Woods at Scunthorpe on 21st July and 1st September. This species was fairly common up until 2006 and then was not recorded again until these two records.

BUTTERFLY REPORT

Allan Binding

2011 turned out to be a very mixed year for butterflies. After the very cold 2010/2011 winter it was surprising to see many butterfly species on the wing quite early in the year. By late spring the warm sunny weather had caused many plants to dry out leaving the butterfly species whose larvae feed on low vegetation and grasses struggling to survive. These included small copper, small heath and small tortoiseshell all of which were down in numbers. By July/August the plant life had started to revive due to more rainy days.

Very few migrant species such as clouded yellow and painted lady butterflies, were recorded in Lincolnshire in 2011. In contrast red admiral butterflies had a very good year. The first record was from Washingborough on the 24th March and the last was recorded on the 27th December at Thorpe-on-the-Hill. Grizzled and dingy skipper had another good year in the south of the county. Both wall brown and white admiral had a poor year which may have more to do with loss of habitat than with weather. purple hairstreak was another species that had a poor year.

Dark green fritillary was seen at four locations in south and mid-Lincolnshire and silver-washed fritillary was recorded from three locations in the same part of the county. Unconfirmed sightings of the latter species were reported from Crowle Waste in Lincolnshire and also from Nottinghamshire and Derbyshire.

At the time of writing Butterfly Conservation Lincolnshire Branch had received 12,768 records for 2011. This surge in records is partly due to the Butterfly Conservation online summer survey sponsored by Marks & Spencers.

The Lincolnshire Naturalists Union and Butterfly Conservation would like to thank all their members and the general public for the records received 2011.

DIPTERA

Andy Godfrey

Comments are provided on records sent on by Phil Porter in January 2012, subsequent emails and on dolichopodid and lauxaniid specimens provided by Phil for identification.

Nephrotoma crocata (Red Data Book 3)

This distinctive yellow and black banded cranefly is widespread but thinly spread throughout England. It appears to have undergone a marked decline with only fifteen post 1960 records noted by Falk (1991). The distribution map in Stubbs (1992) shows seven 10km squares with post 1960 records nationally (clearly some records known to Falk have not been plotted) and none of these appear to be in Lincolnshire. Four specimens were recorded by Alan Philips from Sandhills, Whisby Nature Park on 25th May 2011.

Tanyptera nigricornis (Red Data Book 3)

Another large and distinctive cranefly, this species is associated with old broad-leaved woodland, parkland and heaths. The larvae develop in dead and decaying wood on old or diseased broadleaved trees. The distribution map in Stubbs (1992) shows only six 10km squares with post 1960 records nationally although three are in the east Midlands. Richard Davidson recorded an individual on 11th May 2011 from Birch Wood, Southrey.

Cheilosia pubera (Nationally Scarce)

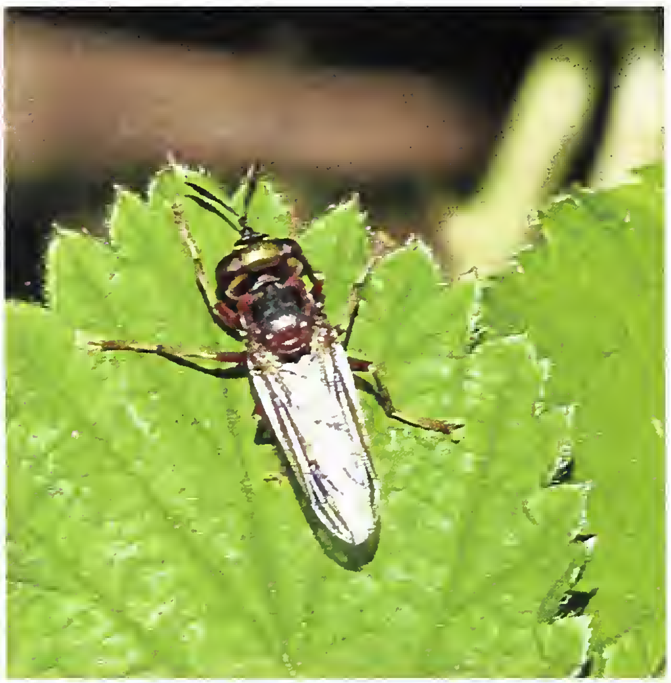
This black hoverfly is widespread in Britain and is primarily a northern species. The larvae feed at the roots of water avens *Geum rivale* and the adults have been found at scrub edges, in wet pasture, fen edges and lake shores (Ball and Morris 2011). This species has previously been recorded from Lincolnshire and the most recent record is from Chamber's Farm Wood by Richard Davidson on 18th May 2011.

Neoascia interrupta (Nationally Scarce)

This minute hoverfly is almost entirely confined to eastern England as far as north as South Yorkshire. One record in Ball and Morris (2011) appears to be on the Lincolnshire/Nottinghamshire border. There may be an association with greater reedmace *Typha latifolia* although this is not proven. This species was recorded by Richard Davidson from Grebe Lake, Whisby Nature Park on 4th May 2011.

Conops vesicularis (Nationally Scarce)

This conopid is widespread as far north as Cheshire and Lincolnshire. The recorded habitat is usually dry heathland and adjacent broadleaved woodland and parkland. The larvae are believed to develop as parasitoids in the abdomen of bumblebees and possibly hornets *Vespa crabro*. Falk (1991) was aware of almost 30 known post 1960 records. Ray Rousseau photographed an individual at Willow Walk, Whisby Nature Park on 29th May 2011.


Conops vesicularis at Whisby

Picture Ray Rousseau

Icterica westermanni (Nationally Scarce)

This distinctive picture-winged fly has mainly been recorded from England south-east of a line from the Wash to the Bristol (Clemons 1996). Falk (1991) had earlier stated that this species was very local with about 20 known post 1960 sites. The adults are most often found on or around hoary ragwort *Senecio erucifolius* in late summer. Richard Davidson recorded an individual from Snakeholme Pit on 31st June 2011.

Psacadina verbekei (Nationally Scarce)

This snail-killing fly has been recorded widely in England as far north as Yorkshire and has also been recorded from Wales (Falk 1991). This species is found in a range of wetlands including fens, damp heaths, riversides and dune slacks. The larvae develop as parasitoids of aquatic snails. There is no recent published atlas for this family but the distribution map on the National Biodiversity Network (NBN) Gateway http://www.nbn.org.uk shows a wide spread of records throughout England and Wales. There appear to be former Lincolnshire records from the North Lincolnshire coast and from the Lincolnshire/South Yorkshire border in the Humberhead Peatlands. This species has been recorded from wet heath on Whisby Nature Park by Richard Davidson on 18th April 2011.

Tetanocera phyllophora (Nationally Scarce)

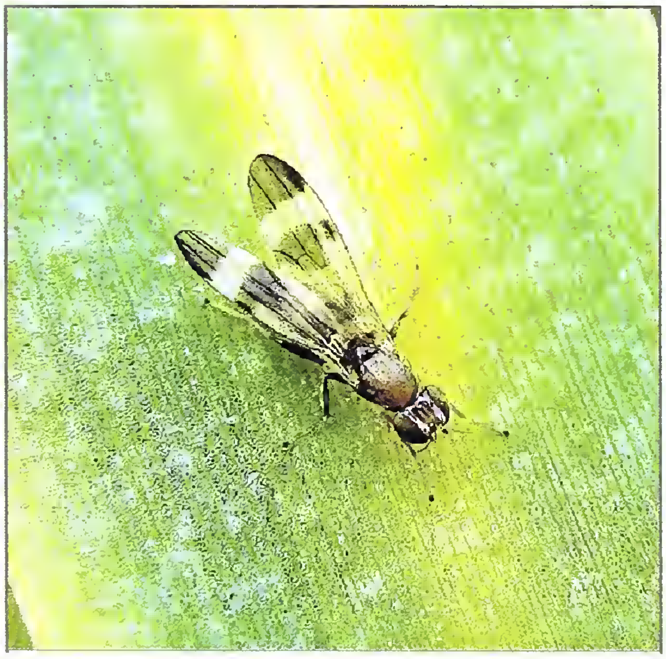
Another snail –killing fly which is widespread throughout England and Wales but more thinly scattered than the last species and it extends into Scotland (based on the NBN distribution map). This species is usually recorded from woodland, often adjacent to wetlands and carr. The larvae are predators or parasitoids of terrestrial snails. There are no Lincolnshire records on the NBN Gateway distribution map. Richard Davidson recorded an individual from Chambers Farm Wood on 7th June 2011.

Meiosimyza laeta (Red Data Book 3)

This lauxaniid fly has mainly been recorded from Scotland although the recorder has several records for northern England. It is normally associated with damp woodland or carr near to rivers or marshes. The larval biology is unknown but other members of the genus have been reared from a range of situations including leaf litter, soil, dead wood, bird nests and moss. A female specimen was collected by Richard Davidson from Pike Drain, Whisby Nature Park on 27th May 2011 .

Typhamyza bifasciata (Nationally Scarce)

This minute fly is nevertheless distinctive because of the dark bands on the wings. Post 1960 records are available for ten English counties and two Welsh counties (Falk and Ismay in prep.). The only available distribution map is that on the NBN Gateway which doesn't show any Lincolnshire records. The adult has been recorded from ditches and pond margins in fens, from coastal levels and damp woods and the larvae develop in the rotting basal portions of lesser reedmace *Typha angustifolia* in particular. Richard Davidson recorded an individual from Compartment 20, Whisby Nature Park on 26th July 2011.



Typhamyza bifasciata

Picture Stephen Falk

Brachicheta strigata (Nationally Scarce)

There are scattered records of this parasite-fly throughout southern England, extending sparsely northwards to Lincoln and Durham according to the Tachinid Recording Scheme website http://tachinidae.org.uk It has mainly been recorded from broadleaved woodland but has also been recorded from open marsh and scrubby grassland on post-industrial sites. The larvae are parasitoids of moth caterpillars but the hosts are unknown. This species has been recorded from nine 10km squares in England and one in Scotland according to the distribution map on the NBN Gateway. Phil Porter has reported that this species has been recorded in 2012 at Whisby Nature Park.

Lipsocephala falculata (Nationally Scarce)
This muscid fly is mainly known from southern England. D'Assis-Fonseca (1968) states that it can be locally not uncommon. This species has been recorded from ten 10km squares on the distribution map on the NBN Gateway. Phil Porter has recorded this species from wet, slightly acid grassland at Whisby Nature Park.

ACKNOWLEDGEMENTS
My thanks to Richard Davidson and Phil Porter for supplying specimens and records. Further material has been supplied by Alan and Annette Binding and Alan Lazenby and this will form the basis of the next note.

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Stratiomys potamida

Picture John Flynn

John Flynn contributed the following;

It was a good year for the Conopid *Conops quadrifasciata* which seemed to be everywhere. Last year (2010), its relative *Sicus ferrugineus* was more in evidence. The Stratiomyid *Stratiomys potamida* was more abundant than than in recent years especially at Whisby. Will it be the same next year? The Tachinid (parasitic fly) *Tachina fera* is usually frequent but it is always interesting because of its life history, having a great variety of hosts.

Of interest was the discovery of Phorid parasitoids (*Phalacrotophora sp.,* Diptera, Phoridae) in Harlequin Ladybirds (*Harmonia axyridis)* at Whisby. These flies attack several ladybird species especially *Coccinella septempunctata* and can inflict a very high level of infection. There are two *Phalocrotophora* species in Britain. Both infect ladybirds and they have been found together in one pupa. 16 were obtained from two pupae. It will be interesting to see which species it is or maybe both will be present. *P.fasciata* predominates in the south and south-east and *P. berolinensis* elsewhere.

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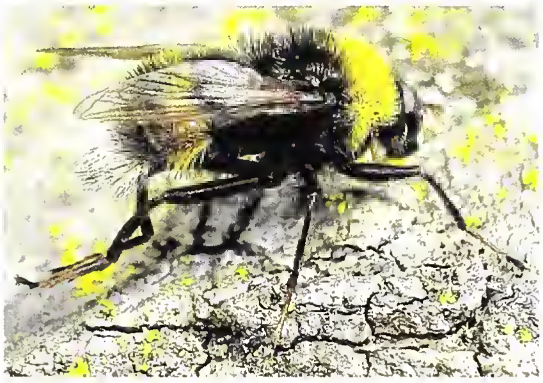


Pocota personata

Picture Mick Talbot

Phil Porter contributed the following;

Charlie Barnes sent a specimen of the sand-dune Bombyliid *Villa modesta* from Seacroft, on 27th July 2011. This bee-fly is rarely reported in the county and is scarce nationally.

Mick Talbot photographed *Pocota personata* at Backies Wood, Lincoln on 29th April 2011. This is an elusive hoverfly species with very few county records indeed. Nationally scarce.

BEETLES

Charlie Barnes

The year got off to a good start with the third record of leaf beetle *Cassida vitatta* for Lincolnshire on the 9th January. Two specimens were found by the author under a piece of drift wood on the strand line near Wrangle. This is the third record for the North Lincolnshire vice-county, with the two other records from 1941 and 1912. Considered a pest of sugar beet in other countries it is surprising it is not more common in Lincolnshire! Indeed I wouldn't be surprised if a search of coastal beet fields turns up more records.

On the 16th April, Mick Talbot swept a specimen of the weevil *Anthribus fasciatus* from hawthorn along a roadside in Bracebridge, Lincoln. It is known recently in Lincolnshire from a single record, with historic records pre-1900 and is classed as Notable A.

Despite having 18 other records in the database, the ant-like leaf beetle *Aderus populneus* was known only from one location in Lincolnshire – a tree rot hole in Hagnaby. On the 21stApril a specimen was beaten from an ornamental Bird Cherry (*Prunus padus*) near Stixwould by the author. A Notable B species, which is widespread across southeast England, the species is associated with a variety of broadleaved trees in which the larvae feed in the red-rotten heartwood. The area in which *A. populneus* was found is not heavily wooded (a road verge surrounded by arable fields), however there are a few large oaks in the immediate vicinity, some with evidence of heavy decay.

A specimen of the weevil *Magdalis armigera* was beaten from a mixed deciduous hedge near Haddington on the 25th April by the author. This species was known only from one other record in the South Lincolnshire vice-county from Grimsthorpe Park and hasn't been recorded in the North Lincolnshire vice-county since 1937. Locally common throughout the rest of England, it is usually associated with elm.

Amongst a rotting horse-chestnut stump in Bracebridge, Lincoln on the 2nd May, Mick Talbot found a specimen of the silvanid *Uleiota planata*. This species was previously known from one other site in Lincolnshire: Grimsthorpe Park. Its occurrence in Lincoln was unexpected, not least due to its Notable A status.

A specimen of the ground beetle *Lebia chlorocephala* almost suffered a disastrous fate when it ran out in front of the author whilst he was walking near Woodhall Spa on the 6th May. This represents the 3rd record for the North Lincolnshire vice-county, with the last recorded at Torksey in 1895. A Notable B species, it is associated with open grasslands where the larvae parasitize those of the leaf beetle genus *Chrysolina*.

Cryptocephalus sexpunctatus

Picture Adrian Royle

During May I received two photographs of the RDB Vulnerable and UK BAP species leaf beetle *Cryptocephalus sexpunctatus*. Both Adrian Royle and Colin Smith had independently found the beetle in Chambers Farm Wood on the 15th May and in Camshaws Plantation on 24th May respectively.
C. sexpunctatus has been recorded once before in Lincolnshire at Scotgrove Wood in 1956. Closely related to the hazel pot beetle *Cryptocephalus coryli*, which was the subject of a

re-introduction programme into Lincolnshire under English Nature's Species Recovery Programme, it relies on the similar warm micro-climate that can be found along woodland rides and glades. The *Cryptocephalus* leaf beetles have a fascinating life-history; the female coats each egg in a case of faeces and drops it to the floor. The larva inhabits this case where it feeds on leaf litter and vegetation, increasing the size of the case with its own faeces. From this behaviour originates the common name of "pot beetles".

Following on from Bob Merritt's record of *Panagaeus cruxmajor* near Alkborough in 2010, this RDB Endangered and UK BAP ground beetle has since been found at Whisby Nature Park near Lincoln by Martin Gray on the 2nd June. It was last recorded in the South Lincolnshire vice-county in 1858. This find represents the third site for this beetle in Lincolnshire and it will interesting to see if any further sightings are reported from the area.

Alan Lazenby found the the ground beetle *Demetrias imperialis* at Fiskerton Fen on the 23rd April and whilst surveying Huttoft Pit Lincolnshire Wildlife Trust nature reserve on the 7th July, the author came across a single specimen. Previous to this *D. imperialis* had only been recorded in the South Lincolnshire vice-county, and then only on 5 occasions. This Notable B species is associated with reed beds and litter, and is restricted to south eastern England. Whilst at Fiskerton Fen Alan found another Notable B ground beetle *Acupalpus exiguus* - this represents the second record for the North Lincolnshire vice-county and has not been recorded since 1973.

Also found by Alan Lazenby and the author were 3 additional records for the North Lincolnshire vice-county of the flea beetle *Epitrix pubescens*. Alan found *E. pubescens* at Fiskerton Fen on the2nd June and at Boultham Mere on the 13th June and the author had the species at Sandilands Pit Lincolnshire Wildlife Trust nature reserve on the 7th July. Prior to these records it had been recorded 4 times in the South Lincolnshire vice-county and only once in the North Lincolnshire vice-county. In addition, on the 13th June Alan Lazenby found the weevil *Cionus tuberculosus* at Tunman Wood - this is the second record for the South Lincolnshire vice-county.

Finally, the first record of the wood boring beetle *Ernobius mollis* for the South Lincolnshire vice-county was found by the author on the 2nd July near Metheringham, on a road verge planted with Scots Pine. *E. mollis* is widespread in the North Lincolnshire vice-county, but has only been recorded 5 times in the last 50 years. It is said to breed only in the bark of pine, spruce and larch.

ACULEATE HYMENOPTERA

Alan Phillips

This is my first report as county recorder for aculeate wasps, ants and bees. Overall 2011 turned out to be an excellent year with 10 species added to the Lincolnshire checklist. This all-time list now totals 312 species (158 wasps, 20 ants, 134 bees) that have been recorded in both vice-counties (VC53, VC54) as a whole.

Records were received from 43 people and many of these were in relation to the so-called 'tree bumblebee' *Bombus hypnorum* after a request for sightings and photographs was included in the Wildnews Bulletin. The species was first recorded in Lincolnshire in 2008, and from 12 records in 2010, it has increased to 70 records for 2011. It looks set to become one of our commonest bumblebees and in the UK has been recorded as far north as Northumberland. It has even found its way to Iceland.

A long-term wasp and bee survey (started in 2009) has continued at Whisby Nature Park (Whisby NP) and the site has now eclipsed Messingham Sand Quarry (MSQ) as having the counties largest species list. The top four Lincolnshire sites, including approximate species recorded, are as follows: Whisby NP, 142 species; MSQ, 117; Rauceby Warren, 109; Gibraltar Point, 102. It is planned the Whisby NP survey will continue for at least 2012.

Note. In the following text grid references are centralised for large sites, and when a site is mentioned more than once, the grid reference is only given in the first instance. Initials in the text belong to: Richard Davidson (RD), Andy Jukes (AJ), and Alan Phillips (ALP).

New county records

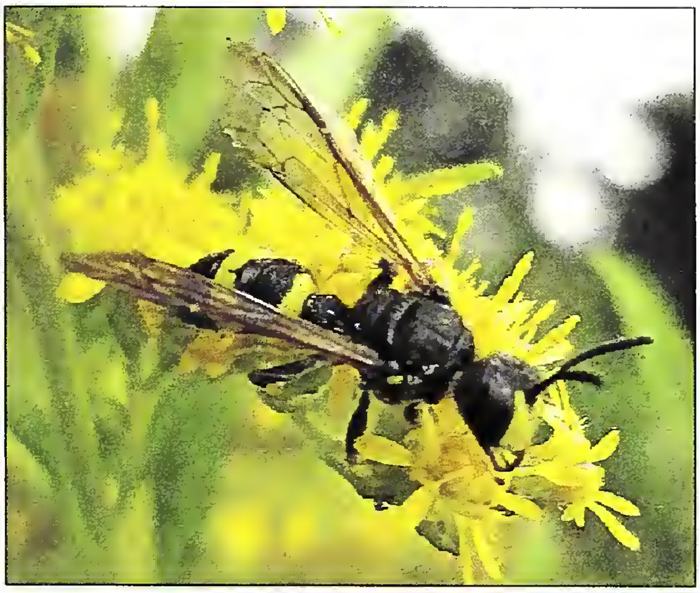
Aporus unicolor Spinola, 1808 – TATA Steelworks, Scunthorpe, SE9310, AJ. Recorded as part of a Buglife (Invertebrate Conservation Trust) project survey on brownfield sites. This is a scarce, 5 – 11mm, spider-hunting wasp which preys on the purse-web spider *Atypus affinis*. Interestingly this spider is currently only found from one site in the county, that being Kirkby Moor (A. Binding pers. comm.), so the presence of the wasp at the Scunthorpe site also suggests the presence of the spider there.

Crossocerus distinguendus (Morawitz, 1866) – TATA Steelworks, AJ. This small, 4 – 4.5mm, black digger wasp nests in the ground or in deadwood and preys on small flies (Diptera). It is a nationally scarce species and difficult to separate from the closely related, and relatively widespread, *Crossocerus elongatulus*.

Crossocerus leucostomus (Linnaeus, 1758) – Osgodby Wood, TF0992, ALP. A small, 5.5 - 8mm, black digger wasp which nests in deadwood and preys on small flies (Diptera). This is a very rare wasp and although considered a northern species, with a stronghold in the pinewoods of Scotland, in recent years it has been recorded in Yorkshire (Archer, 2011a) and further south still in Nottinghamshire at Spalford Warren (Archer, 2010).

Crossocerus walkeri (Shuckard, 1837) – Whisby NP, SK9166, RD. A small, 5 – 8mm, black digger wasp which nests in deadwood and preys on small mayflies, normally from the family Baetidae. The wasp is a rare species and is normally associated with wetlands and margins of cleaner rivers and streams.

Gorytes laticinctus (Lepelitier, 1832) – Whisby NP, ALP. A medium-sized, 9 – 13mm, yellow and black digger wasp which preys on various bugs such as froghoppers (Homoptera). A very rare species which is normally found in the southern half of England, so this record currently represents its northern limit.


Cerceris rybyensis

Picture Mick Talbot

Cerceris rybyensis (Linnaeus, 1771) – Backies Wood, Boultham Moor, SK9668, Mick Talbot. A medium-sized, 8 – 12mm, yellow and black digger wasp which preys on small to medium sized bees. It is a widespread species in the southern half of the UK so it is not surprising it should be found in the south of the county. This was in fact recorded in both 2010 and 2011 but the records only came to light when photographs of the species were posted on Mick Talbot's photo sharing webpage on Flickr (www.flickr.com).

Cerceris quinquefasciata (Rossius, 1792) – South Farm, Thurlby, SK9061, Annette Faulkner. A medium-sized, 7 – 10mm, yellow and black digger wasp which preys on weevils (Coleoptera), and superficially resembles the closely related *Cerceris* *arenaria*. It is a very rare species which is restricted to the south of England. Found whilst on an LNU field meeting, this Lincolnshire find is quite significant as the nearest record is from the Brecklands of Norfolk/Suffolk.

Hylaeus signatus (Panzer, 1798) – Whisby NP, RD and ALP. A small, 6 – 8mm, black bee with almost no hair covering the body. The bees of this genus have yellow markings on the face, hence the common name 'yellow-faced bees'. A once scarce species which is now more widespread, *H. signatus* is also found in Yorkshire, so it is not surprising it has been found in Lincolnshire. Although closely associated with the flowers of weld and wild mignonette (Resedaceae), at Whisby the bee was often swept from flowers such as cow parsley *Anthriscus sylvestris*.

Nomada integra Brulle, 1832 – Whisby NP, ALP. A medium-size, 7 – 10mm, bee with red markings. This is a nationally scarce species and the cuckoo bee (cleptoparasite) of *Andrena humilis*. This latter species has yet to be recorded in the county, but the presence of its cuckoo suggests *A. humilis* is probably here. At Whisby a male was found along a bare clay bank.

Sphecodes longulus von Hagens, 1882 – Whisby NP, ALP. A small, 4 – 6mm, red and black bee. A rare species with a southern distribution, it is the cuckoo bee of various species of *Lasioglossum*. Both males and females were found amongst host species nesting in a bare earth bank.

Other important and interesting records

Bethylus fuscicornis (Jurine, 1807) – 7th record, Whisby NP, ALP. A very small black wasp which is a parasitoid on moth larvae. Swept from sparse grass over sandy ground.

Tiphia femorata Fabricius, 1775 – 2nd record, Whisby NP, ALP. This wasp was first recorded at Whisby in 2010, when RD found a female. It was found again at the same site in 2011 but this time a male was swept from sandy ground.

Chrysis viridula Linnaeus, 1761 – 3rd to 7th records; Whisby NP, RD and ALP; TATA Steelworks, AJ; Osgodby Wood, ALP. This brightly-coloured, metallic green, blue and red, wasp is the cuckoo of the eumenid wasp *Odynerus spinipes*. Along with its host, *C. viridula* is either spreading or has suffered from under-recording in the county. Both species have been found in good numbers at all the above sites either at nesting banks or whilst nectaring on flowers, typically umbellifers.

Monosapyga clavicornis (Linnaeus, 1758) – 3rd record, Gosberton Clough, TF1929, Leslie Hebdon. Among some photos Leslie sent me of the wasp *Sapyga quinquepunctata*, taken whilst it rested on a bee hotel in her garden, was a photo of a similar-looking wasp, but instead of having the black, red and white markings of *S. quinquepunctata*, it had black and yellow markings. This turned out to be the rarer *Monosapyga clavicornis*. The only other Lincolnshire records of this species are from Torksey in 1901 and Old Bolingbroke in 1939. Both the above species are cuckoo wasps and are known to lay their eggs in the nests of species of bees including *Osmia* and *Chelostoma*, both of which frequent Leslie's garden.

Dipogon subintermedius (Magretti, 1887) – 3rd record, Osgodby Wood, ALP. A small spider-hunting wasp which preys on the spider *Segestria senoculata* (Segestriidae). A female was swept from scattered deadwood over bare sandy ground.

Dipogon variegatus (Linnaeus, 1758) – 3rd record, Pasture Wharf, TA0423, ALP. Very similar to the above species but preys on the spider *Xysicus cristatus* (Thomisidae). Female swept from rocky area among brambles on foreshore.

Priocnemis fennica – 2nd to 4th records, Whisby NP, ALP. A small black spider hunting wasp. First recorded at Whisby NP in 2010 by RD.

Crossocerus binotatus Lepelitier & Brullé, 1835 – 3rd record, Whisby NP, ALP. A scarce medium-sized yellow and black wasp which preys on small flies (Diptera) and nests in deadwood. A male was found resting on a birch trunk.

Trypoxylon medium – 2nd and 3rd records, Pasture Wharf, and Whisby NP, ALP. A medium-sized black wasp with very long abdomen. It preys on immature spiders and nest in holes in deadwood and plants stems.

Lasius fuliginosus (Latreille, 1798) – 7th record, Nocton, TF0363, Charlie Barnes. Small, shiny black ants with heart-shaped heads. A widespread species though not often found. Charlie found these under deadwood whilst searching for beetles.

Lasius sabularum (Bondroit, 1918) – 2nd record, Little Scrubbs Meadow area, Chambers Farm Wood, TF1474, ALP. A small yellow ant. The species was first recorded in the county in 2010 and at the same location (Archer, 2011b). It was particularly interesting in that the species was found sharing a nest in a tree stump with the closely-related *Lasius umbratus*. The only other published account found of this behaviour was from a similar find in Poland (Borowiec, 2010). An attempt was made to monitor the nest and it was checked in March 2011 and found active, but when checked again in June, the nest stump had been damaged and a nest of *Myrmica rubra* had taken-up residence. A full account can be found in Phillips and Attewell (2011).

Andrena dorsata (Kirby, 1802) – 3rd to 5th records, TATA Steelworks, AJ. A medium-sized mining bee with a banded abdomen. Apart from the three records in 2011, the species was last recorded in the county at Old Bolingbroke and Woodhall Spa in 1941.

Andrena flavipes Panzer, 1799 – 2nd and 3rd records, Wilsford Heath Quarry, SK9841, and Haltham, TF2463, ALP. A medium-sized bee with banded abdomen and yellow-haired tibia. This species was first recorded in the county in 2010 at an LNU meeting at Willow Tree Fen. Although considered a southern species, it seems to be one that is increasing its range north, and at present the Haltham find is possibly the most northerly record for the species in the UK.

Chelostoma campanularum (Kirby, 1802) – Gosberton Clough, Leslie Hebdon. Small, 5 – 7mm , black bees which nest in holes in dead wood and plant stems. A bee which forages for pollen on *Campanula* flowers – hence its name. This species has only been recorded at one location in the county, that being Leslie's garden. First found there back in 2007, the species continues to be present.

Bombus ruderatus (Fabricius, 1775) – Leasingham, TF0548, Val Littlewood. In recent years this bumblebee seems to be doing well and has a stronghold in the Cambridgeshire and Lincolnshire Fens. Leslie Hebdon regularly has it in her garden in the south of the county at Gosberton Clough, and Leslie and myself found it in good numbers (both banded and all-black forms) at Willow Tree Fen at an LNU meeting in 2010. In 2011 Val Littlewood sent me good photographs of a very large all-black *Bombus* queen on yellow archangel *Lamiastrum galeobdolon* flowers from a garden in Leasingham, north of Sleaford. With its long face, all-black appearance and very short hair covering (in the UK the closely-related *B. hortorum*, when all-black, still retains a white tail and has longer, more shaggy hairs) it is almost certainly a queen *Bombus ruderatus*. So it seems it could be spreading further north or going unnoticed. I have also received unconfirmed reports from the Lincoln area so it may be spreading further north still.

My thanks go to all those people who sent in records, specimens and photographs, and in particular, thanks go to Richard Davidson for his many specimens from Whisby Nature Park and the Lincoln area. I would also like to thank Michael Archer for his support in my transition as county recorder, and his continued help in confirming and identifying difficult species.

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HARVESTMEN

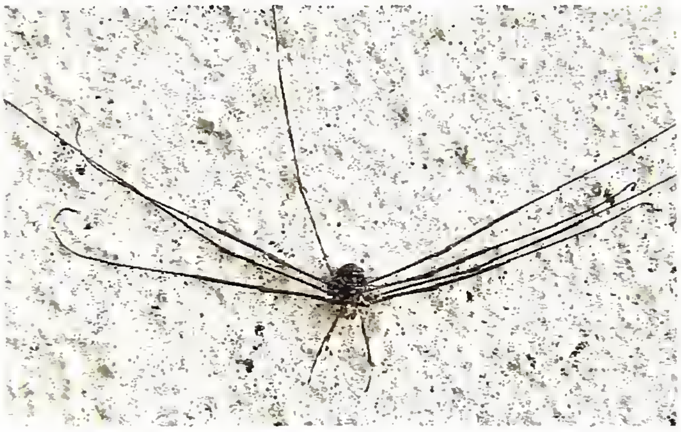
Annette Binding

Harvestmen belong to the order Opiliones of the class Arachnida which also includes spiders, scorpions, pseudoscorpions and ticks. There are twenty-seven species in North-west Europe. Harvestmen are similar to spiders and often mistaken for them. Like spiders, harvestmen have eight legs but unlike spiders their bodies are oval without the 'waist' of true spiders. Harvestmen only have two eyes whereas most spider species have eight and unlike spiders, harvestmen do not produce silk or spin webs.

I have always recorded those harvestmen which are easily identified in the field such as *Nemastoma bimaculatum* which incidentally is the species which has the most Lincolnshire records. However I began to take more interest in harvestmen in 2011 after I received photographs of the very distinctive species *Dicranopalpus ramosus* taken on the 10th September by John Davison at Messingham Sand Quarry LWT Reserve where he is warden. The identification was confirmed by Peter Nicholson, National Opiliones Recorder who also confirmed that the species was new to Lincolnshire. A few weeks later I received more photographs of *Dicranopalpus ramosus* this time from Alan Dale who took the photographs on his garage wall on the 6th October. *Dicranopalpus ramosus* is very distinctive in that both sexes have forked palps. They also have very long legs which are held at right angles to the body when resting.

Dicranopalpus ramasus

Picture John Davison (above); Alan Dale (below)



We now have 394 records dating from 1899 to 2011 which include the Lincolnshire records from the national recording scheme. Twenty of the twenty-seven species found in North West Europe have been found in Lincolnshire.

At the time of writing I have yet to look at a small collection of harvestmen held in the Lincolnshire County Archives which are likely to have been collected by George W. Whatmough and these may add a few more records to the database.

I am grateful to both John Davison and Alan Dale for allowing me to use their photographs for this article.

MAMMALS

Chris J. Manning

In 2011, 1,914 records were entered into the mammal database, alas individual recording effort declined slightly compared with 2010. The greater number of records is due to the inclusion of a large data set from an ecological consultant; Ecological Services Ltd who provided the results of the water voles surveys they undertook for the Environment Agency. Across the county numerous consultants' reports are produced to accompany planning applications, ideally it would be a prerequisite of this process that data was supplied to the Lincolnshire Ecological Records Centre for forwarding and verification by county recorders.

The most common species in 2011 were; Water Vole *Arvicola amphibious* (587), Brown Hare *Lepus europaeus* (218), Badger *Meles meles* (141), Hedgehog *Erinaceus europaeus* (112) and Grey Squirrel *Sciurus carolinensis* (108).

Most records were of sightings (719) water vole latrines (584) and road casualties (336). Only two recorders provided more than 100 records during the year: Brian Hedley (113) and K.D. Robertson (102). Unusual records include an albino brown hare seen by Paul Hewitt at North Ormsby in July, described as not fully mature with only very a slight trace of colour on the ear tips. Nicholas Watts photographed a white-sided dolphin *Lagenorhynchus acutus* skull on Holbeach Range in December, identification was confirmed by Dr Peter Evans, Scientific Director of Sea Watch. The white-sided dolphin is a pelagic species of the north Atlantic normally found outside or along the continental shelf, with only occasional records in the southern North Sea (Harris & Yalden, 2008). Another rare species is the hooded seal *Cystophora cristata* recorded at Chapel St Leonards detailed in a separate report.

Otter *Lutra lutra*

Picture Stuart West and Richard Butler

More records were received by the use of trial cameras, Stuart West and Richard Butler from Louth used a camera on the River Bain in video mode and recorded; badger, Chinese muntjac *Muntiacus reevesi*, ferret *Mustela putorius sp.*, grey squirrel, red fox *Vulpes vulpes*, and otter *Lutra lutra*. The video footage of a healthy female and otter and her cub was supplemented with the pleasing news of 4 being seen at Messingham Sand Quarries suggesting a healthy population able to cope with considerable attrition. Otter causalities include: 10 killed in road August. The use of fyke nets for eels requires consent from both the landowners and the Environment Agency, simple mesh grill are available that exclude otters and avoid this mortality.

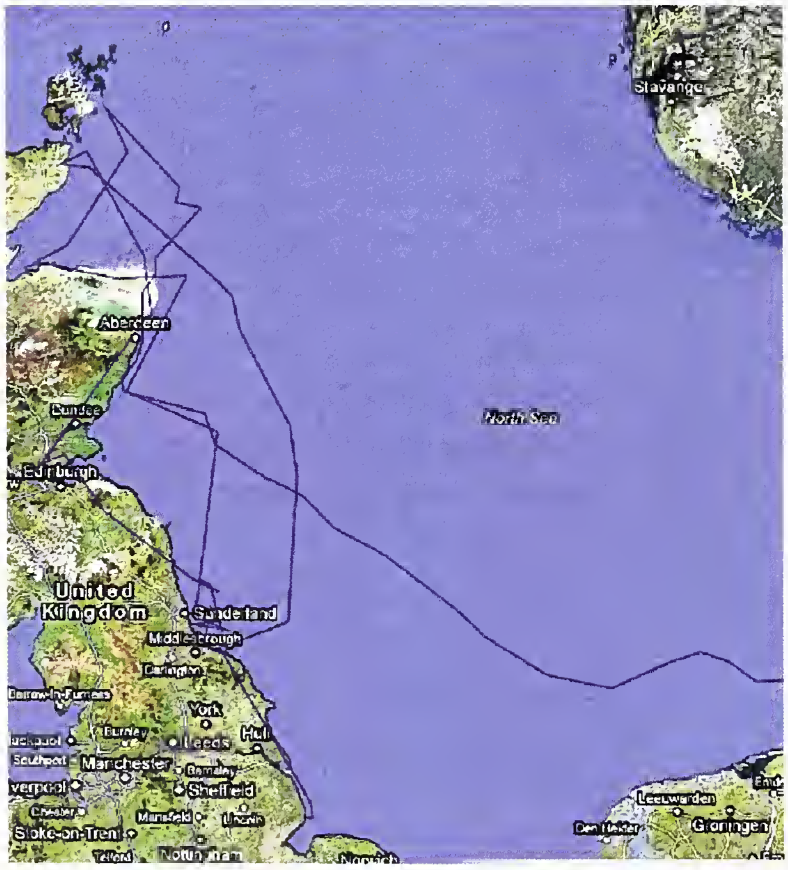
Pleasingly the Chinese water deer at Gibraltar Point was photographed twice in 2011, it might be our rarest mammal but the records are now fully verified.

References:

HARRIS, S. YALDEN, D. W. Editors. 2008. *Mammals of the British Isles*: Handbook, 4th edition, Mammal Society. 799pp.

HOODED SEAL *Cystophora cristata*

Eve, as she is now called, was found at Chapel St Leonards on the 20th December 2011. She is a female hooded seal which weighed 38kg and was then about 8 months old (Yeadon, 2012). The hooded seal is a species of the arctic regions, from Labrador to Greenland, increasingly recorded in western Atlantic to Shetland with 14 records further south including Suffolk in 1872, and a previous juvenile rehabilitated in Lincolnshire during 2001 (Harris & Yalden, 2008).



Previously on 24th August Eve was found by staff at a seal sanctuary in Friedrichskoog, Germany weighing 35kg. She was rehabilitated and released with a tracking device on October 13th (Yeadon, 2012). She then returned across the North Sea to Scotland before turning and heading south until she was found in Lincolnshire (Yeadon, 2012). Typically a hooded seal pup weights 22kg at birth and increases weight to 42.6kg until weaning on day 4, the shortest lactation period known for any mammal (Bowen, *et al* 1985). Typically seal pups will lose some weight after weaning but Eve's weight was exceptionally light for her age when she was found. An adult female should weigh around 200kg. Eve will continue to be kept in captivity at Skegness. The species is common in Iceland and disease risks prevent her being welcomed back.

References:

BOWEN, W. D. OFTEDAL, O. T. BONESS, D. J. 1985. *Birth to weaning in 4 days: remarkable growth in the hooded seal, Cystophora cristata*, Canadian Journal of Zoology, 1985, (12).

HARRIS, S. YALDEN, D.W. (editors) 2008. *Mammals of the British Isles: Handbook, 4th edition*, Mammal Society

YEADON, D. 2012. Natureland *pers com*.

BATS

Annette Faulkner

It has been a productive year on the the Limewoods barbastelle *Barbastella barbastellus* project. We have now recorded this nationally scarce species in all of the Limewoods, although to date the only breeding colony appears to be in Chambers Wood. However, data from a woodland in the Potterhanworth area strongly indicates that there is a second colony present, and more work will be carried out this season to track it down.

Of particular concern, however, has been the paucity of noctule *Nictalus noctula* records from the Limewoods area, although a maternity roost has been located in a tree at Barton on Humber, a site near Immingham, and at Manby. Why this woodland species appears only to be common in the north is not clear. It is scarce or uncommon in most other parts of the county.

Another highlight of the year was regular recordings during the summer of the rare Nathusius's pipistrelle *Pipistrellus nathusii* at a site near Tetney. Records of this migratory species in spring and autumn are not uncommon, but summer records suggest a possible maternity roost, and if confirmed this would be only the second such record for the county.

Identification of the very similar whiskered *Myotis mystacinus* and Brandt's *Myotis brandtii* bats to species is difficult, and they are generally lumped together as 'whiskered sp'. Although they are widespread in some parts of the county, roost records in the north are very thin on the ground, so the discovery of a roost in the roof of a Bat Group member's house in Scotter was a very welcome surprise. Identification to separate to species was done via DNA analysis, and this colony was confirmed as whiskered. Needless to say the owner is absolutely delighted!

Lead thefts from churches around the county have continued unabated. The majority of these churches have bat roosts in them, so surveying for roosts and looking at the potential impacts on the resident bats has kept Bat Group members busy throughout the year. It has also given us the opportunity to resurvey a number churches that haven't been looked at for years, or even not at all, and even without the damage caused by lead thefts there appears to be emerging a worrying trend in reduction of bat numbers in some of these buildings.

Finally, to end on a more cheerful note, in July we took a call from Bateman's brewery in Wainfleet. Seven half-grown juvenile common pipistrelles *Pipistrellus pipstrellus* had been found wandering in the small yard outside the boiler house, where there is a known roost. This was not the first time this had happened, but it was several years since the last episode, and this time a concerted effort was made to find the exact location of the roost and see what could be done to ameliorate the problem. Meanwhile, the young bats had to be dealt with to reunite them with their mothers. They wouldn't go back into the roost, so sterling work was done by our carer at Spilsby and by Bateman's staff – and the bats' mothers themselves. The youngsters appeared to be too big to carry, and the building allowed the bats access inside as well as out, so they were kept in an open box inside and the mothers came back to feed them for several nights, until they finally appeared to sort themselves out. Out of the seven two died, but the other five are thought all to have survived. A large external bat box has now been put up to give them an alternative place to go, and to try to prevent this happening ever again. Only time will tell whether it works.

My thanks to Dave Hughes for the updates on the Limewoods project and for other members for the highlights from the north of the county.

SECRETARY'S REPORT

Charlie Barnes

The LNU goes from strength to strength with over 20 new members joining during the year – a significant proportion of which were recruited at the LNUs first attendance of the Woodlands Organic Farm Open Day, something which we hope to repeat in 2012.

A lot of work has been going on behind the scenes in the past year involving particularly the Collections Working Party and the Botany Project, and the LNU has been well represented on the various meetings that take place in the county, for instance on the Lincolnshire Biodiversity Partnership Steering Group, Lincolnshire Wildlife Trust Biodiversity Team and the Lincolnshire Bird Club.

The Executive Committee also met four times over the course of the year and the programme of summer field meetings covered a variety of habitats and sites across Lincolnshire. The field meetings were well received, with attendance averaging 14 over the summer. The winter indoor meetings were also to their usual standard with a good audience.

INDOOR MEETINGS IN 2011

15th January	Dr. Naomi Sykes 'Extinctions and Invasions: A Social History of British Fauna'
12th February	Recorders' Meeting
12th March	Annual General Meeting
26th November	Andy Chick 'Lincolnshire Peregrines'

TRANSACTIONS OF THE LINCOLNSHIRE NATURALISTS' UNION

Officers of the Union in 2011

(Year of election to the Executive Committee)

President Barrie Wilkinson (2010)

President-elect Roger Parsons (2010)

Honorary Secretary Charlie Barnes (2010)

Honorary Treasurer Ian MacAlpine-Leny (2001)

Membership Secretary via LWT

Publicity Secretary Vacant

Programme Secretary Vacant (winter) and Brian Hedley (2007) (summer)

Editor of Transactions Nick Tribe (2004)

Auditor Emma Murray (Nicholsons)

Executive Committee Richard Chadd (2002), Phil Porter (2008), Colin Smith (2001), Chris Manning (2001).

External representatives Lincolnshire Biodiversity Partnership - Ian MacAlpine-Leny, Lincolnshire Bird Club Committee - Ian MacAlpine-Leny, Lincolnshire Wildlife Trust Biodiversity Team - Richard Chadd, Local Wildlife Sites Panel - Richard Chadd

Section Recorders 2011

Ants Bees and Wasps—Mr. Alan Phillips
Bats— Mrs. Annette Faulkner
Beetles— Mr. Charlie Barnes
Bryophytes/Lichens— Professor Mark Seaward
Butterflies— Mr. Allan Binding
Dragonflies— Mr. Nick Tribe/Mr. Richard Chadd
Fish—Mr. Ian Macalpine-Leny/Mr. Nick Bromidge
Flies— Mr. Andrew Godfrey
(co-ordinators Mr. John Flynn/Mr. Phil Porter)
Fresh-water Invertebrates— Mr. Richard Chadd
Fungi— Mr. Ray Halstead
Geology—
Grasshoppers and Crickets— Mr Brian Redman
Higher Plants— Mr. Paul Kirby
Mammals— Mr. Chris Manning
Marine Invertebrates— Mr. Helgi Gudmundsson
Molluscs (non marine) - Ms Rosie Blackman
Moths— Mr. Colin Smith
Plant Galls— Mr. Graeme Clayton
Sawflies— Dr. David Sheppard
Shieldbugs— Mrs. Annette Binding
Pseudoscorpions— Mrs. Annette Binding
Spiders— Mrs. Annette Binding
True Bugs— Mr. Colin Smith

Contributing to *The Lincolnshire Naturalist*

We are constantly on the lookout for full length articles or short notes, even a few lines which can be useful space fillers, on any aspect of our natural history, current or historic. Consider a note in *The Lincolnshire Naturalist* for any new or significant observations.

Articles should be typed. It would help the editor tremendously if they could either be e-mailed or sent on CD or floppy disk with accompanying paper copy, in Word© or Word Perfect© format. Drawings, colour or black & white photographs, colour transparencies or negatives (please include a print) can be included. If you submit your own photographs, take them or scan them at a resolution of at least 200 dots per inch and at a size equal to or larger than the size they will be printed at (approximately 11.5x7.5cm). Colour illustration may be rendered to black and white. Please give a caption and the name of the person who took the photo/image. Illustrations will be returned and edited text resubmitted to the author for approval and proof-reading before publication.

Convention adopted for names - Latin names should be *italicised*, **not** (bracketed) nor underlined and should follow the English name (where applicable) with no separating comma. English names should start with lower case letters unless incorporating other names warranting capitalisation (eg Brandt's bat).

References to journals and books should please be as below. Please note and use the capitalization and italic convention.

WOODRUFFE-PEACOCK, Rev E.A., 1900. The Lincolnshire Naturalists at Freiston. *The Naturalist*, **25**: 141-144.

DUDDINGTON, J. & JOHNSON, R. 1983. *The Butterflies and Larger Moths of Lincolnshire and South Humberside*. Lincolnshire Naturalists' Union. Lincoln. 299pp.

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Cover picture Gibraltar Point (Photo: Barrie Wilkinson)